

ENVIRONMENTAL ASSESSMENT BOARD



ONTARIO HYDRO DEMAND/SUPPLY PLAN HEARINGS

VOLUME: 165

DATE: Thursday, June 18, 1992


BEFORE:

HON. MR. JUSTICE E. SAUNDERS	Chairman
DR. G. CONNELL	Member
MS. G. PATTERSON	Member

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ENVIRONMENTAL ASSESSMENT BOARD
ONTARIO HYDRO DEMAND/SUPPLY PLAN HEARING

IN THE MATTER OF the Environmental Assessment Act,
R.S.O. 1980, c. 140, as amended, and Regulations
thereunder;

AND IN THE MATTER OF an undertaking by Ontario Hydro
consisting of a program in respect of activities
associated with meeting future electricity
requirements in Ontario.

Held on the 5th Floor, 2200
Yonge Street, Toronto, Ontario,
Thursday, the 18th day of June,
1992, commencing at 10:00 a.m.

VOLUME 165

B E F O R E :

THE HON. MR. JUSTICE E. SAUNDERS	Chairman
DR. G. CONNELL	Member
MS. G. PATTERSON	Member

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1 ---Upon commencing at 10:05 a.m.

2 THE REGISTRAR: Please come to order.

3 This hearing is now in session. Please
4 be seated.

5 AMIR SHALABY,
6 JOHN KENNETH SNELSON,
7 JANE BERNICE TENNYSON,
8 FREDERICK GEORGE LONG,
9 BRIAN PAUL WILLIAM DALZIEL,
10 HELEN ANNE HOWES; Resumed.

11 THE CHAIRMAN: Mr. Grenville-Wood?

12 MR. GRENVILLE-WOOD: Good morning. Mr.
13 Chairman, Members of the Panel, I have a document to
14 introduce which Mr. Lucas has copies of and I
15 understand the witnesses and Mr. Campbell have a copy
16 of and there are some extra copies here. Perhaps we
17 could start by giving it an exhibit number.

18 THE CHAIRMAN: Number?

19 THE REGISTRAR: 722.

20 ---EXHIBIT NO 722: Document Precis: The Cinderella
21 Options.

22 MR. B. CAMPBELL: Mr. Chairman, just in
23 fairness to the witnesses, they received the document
24 about three minutes ago. So I don't know that they
25 have had a chance to exactly study it, but they do have
it.

MR. GRENVILLE-WOOD: No, I'm sure they

1 haven't and I will lead them through the relevant
2 portions.

3 THE CHAIRMAN: Intriguing title, in any
4 event.

5 MR. GRENVILLE-WOOD: I will be referring
6 to the document a little later in my questioning.

7 CROSS-EXAMINATION BY MR. GRENVILLE-WOOD:

8 Q. First, perhaps, I am not sure who I
9 should address this question to, but maybe Mr. Snelson
10 might be most appropriate.

11 I wonder if in your estimation you could
12 tell me whether Ontario Hydro has what you might call a
13 Corporate philosophy which underlies its planning
14 process, sort of a philosophical approach that governs
15 the way it approaches planning for the future interests
16 and needs of Ontario.

17 MR. SNELSON: A. That's a very broad and
18 open-ended question and I'm not sure that in its
19 generality I can respond any more than saying that the
20 philosophy or the preparation of demand/supply plans is
21 the entirety of the demand/supply planning strategy.
22 I couldn't go beyond that I don't think.

23 Q. I am going trying to focus it in a
24 little more. In terms of policies that underlie the
25 approach that you would take to preparing the DSP,

1 would you classify Hydro as being policy neutral in the
2 sense that it merely approaches the demand issues and
3 the supply issues in an objective way or is there some
4 underlying approach that governs the way you make
5 selections and make choices?

6 A. Once again, the approach to making
7 selections and choices is outlined in the strategy.

8 Q. I am just wondering whether you could
9 give us a little more of a brief outline of what kinds
10 of policy directives or concepts you have when you did
11 develop or when you do develop in the future a plan
12 like the DSP or the strategy?

13 A. We have talked about the strategy and
14 the briefest summary of the thrust of the strategy is
15 the five priority strategic directions which we talked
16 about in our direct evidence and are outlined in the
17 strategy.

18 Q. Now, in addressing yourself to those
19 issues, would you say that they are in fact -- well,
20 let me give you a more specific question and see how
21 you would respond to that.

22 In terms of approaches to options, would
23 you say that there is a bent or a policy thrust which
24 would encourage you to examine one option more closely
25 than another, and obviously from knowing who I am

1 representing would there be any kind of an underlying
2 philosophy that says that you ought to examine
3 renewable energy sources of energy in a different way
4 than you would other sources of energy?

5 A. Well, in the strategy renewable
6 energy sources are identified as a preferred energy
7 source and these are horrible words, but all other
8 things being equal then we would a preference for
9 renewable energy resources and we do have a preference
10 for renewable energy sources.

11 Q. Where did that preference option come
12 from as an input to your policy making?

13 Is it a self-generated policy or does it
14 come from outside?

15 A. We developed the demand/supply
16 planning strategy based upon internal analysis of
17 options, what we heard through consultation about a
18 very broad range of options externally and on that
19 basis and all the sum of the knowledge that we had we
20 proposed a draft strategy.

21 The preference for renewable energy
22 sources I think was in the draft strategy and that was
23 part of the subject matter that was reviewed through a
24 number of processes, but particularly the Select
25 Committee of the Legislature. That's the process by

1 which that has become in the demand/supply planning
2 strategy and that has guided our planning since then.

3 Q. All right. Now, what I am asking you
4 is slightly different from that and I suppose it's a
5 matter of whether you have an internal or external, or
6 a combination of either or both, policy formulation
7 process.

8 Now, what I have heard you say is that
9 you would take account of your consultation process,
10 your internal consultation process as well your
11 external one and you have taken account of obviously
12 hearings conducted by the Select Committee and so on.

13 What I am trying to find out from you is
14 whether or not something like this preference for
15 renewable energy was generated from within the
16 Corporation or as a result of these consultations or
17 whether you have -- in other words, are you disposed to
18 receive those things and then you come up with their
19 end results or do you put things into the system which
20 then either get confirmed or rejected?

21 I am trying to see whether there is a
22 fundamental philosophy I suppose is what I am seeking.

23 A. I believe it is a combination of
24 internal and external factors that are taken into
25 account.

1 Q. Can you expand a little more?

2 I mean, we have discussed this, but I was
3 trying to get a little more detail from you in response
4 to the specific question I am asking as to whether or
5 not you start with a clean slate or are there some
6 policy directives and policy guidelines that you start
7 off with as a given when you start the process of
8 consultations and so on?

9 That's a better way of asking the
10 question.

11 A. I think when we started the
12 demand/supply option study we took a conscious decision
13 to make the range of options that were considered as
14 large as we could, that we tried not to constrain that
15 by, ahead of time, assuming that options were not on
16 the table.

17 Q. With respect to the preference you
18 have identified for renewable energy sources, now,
19 correct me if I am wrong but I understand within that,
20 in that context of renewable energy sources, you
21 include hydraulic developments?

22 A. Yes.

23 Q. And both major and small hydro?

24 A. Yes.

25 Q. Putting that aside, putting hydraulic

1 development aside, would you still say that within the
2 context of the overall policy that you have an active
3 preference for renewable sources of energy?

4 A. We have a preference for all the
5 renewable sources of energy and that includes
6 hydraulic, but it also include solar, wind and we tend
7 to consider comparable in terms of their preference
8 such things as energy efficiency improvements because
9 they have the same characteristic and they don't
10 involve, in the operation anyway, the consumption of a
11 non-renewable energy source.

12 Q. Assuming that this preference that
13 you have identified gets put into operation, could you
14 describe to me a little bit how you would see, in terms
15 a planning process and then an acceptance of a plan,
16 how you would foresee Hydro being held accountable for
17 the compliance with a stated policy of preference for
18 particular options?

19 A. I think that in determining how the
20 preference is applied, then we have stated how we apply
21 the preference and, for instance, through this process
22 we are indicating the degree of preference that we have
23 established which on a cost basis we have accounted for
24 a preference of up to 10 per cent.

25 Through this process our planning is

1 being examined and that's one way in which we are being
2 held accountable, but I am sure there are others.

3 Q. What I am thinking about is once this
4 process is over and one assumes that out of this will
5 come some sort of direction for Hydro regarding a
6 number of things, including the things you have asked
7 for in terms of approvals, but what about things like
8 directions and policy that may come out of this
9 hearing?

10 How would you see those being accounted
11 for in the future?

12 [10:15 a.m.]

13 A. That's an area of some uncertainty
14 because it's not well-defined what processes there will
15 be in the future for continuing review of plans.

16 It is clear that of course there will be
17 annual reviews at the Ontario Energy Board of the
18 short-term operational matters that affect electricity
19 rates, and some of the issues may in fact get examined
20 there from time to time. And of course we are
21 accountable through the Power Corporation Act and I
22 believe that the changes to the Power Corporation Act
23 that give the government a more direct control of
24 Ontario Hydro policy have been passed in the
25 Legislature even if they haven't yet been signed by the

1 Lieutenant Governor.

2 Q. Let's say, and just for the sake of
3 this discussion, that the Board at the end of the day
4 said that it has been convinced that there is a greater
5 scope for the use of renewable energy, and let's even
6 try and dream in technicolour and say solar energy, and
7 it says that one of the conditions that Hydro has to
8 meet would be to provide 25 per cent of any new demand
9 through solar energy technologies. Could you let me
10 know how you would go about trying to meet that
11 objective and how, in your view, compliance with it
12 could be tested and accounted for?

13 A. This is a type of hypothetical
14 question --

15 Q. It's hypothetical so long as the
16 Board hasn't made that order, yes.

17 A. At this point in time it's
18 hypothetical.

19 Q. Right. I don't know any more than do
20 about that.

21 MR. B. CAMPBELL: Mr. Chairman, I am
22 prepared to have the question go ahead as long as it's
23 understood that we are hypothesizing that the Board has
24 jurisdiction to make this kind of order. I don't want
25 to get into that particular argument now, but I am

1 prepared to let the question go on that basis without
2 at the same time giving away any arguments that may
3 revolve around this kind of issue.

4 So I as far as I am concerned the
5 question is really if Hydro decided for any reason that
6 this was something it was going to pursue, how would
7 they do it, which would be an equally effective way to
8 state the question.

9 MR. GRENVILLE-WOOD: Q. I will let my
10 question stand the way it was put and we will jump off
11 the jurisdictional bridge when we come to it, I guess.

12 MR. SNELSON: A. And the hypothesis is
13 that 25 per cent of increased demand for whatever
14 reason is to be met by solar power.

15 Q. Yes.

16 A. Solar energy.

17 There are a variety of ways in which
18 Ontario Hydro could set about implementing such a
19 program and I don't know which would be the most
20 effective, whether it would be more effective for
21 Ontario Hydro to develop solar facilities itself,
22 whether it would be more effective to do it through a
23 call for proposals for non-utility generation that
24 would be based upon solar energy, or some combination,
25 and there is a variety of ways in which that could be

1 done and they would have to be examined in the light of
2 the requirement.

3 Q. Would you be able to say at this
4 point that there would be, in your mind at any rate, no
5 technical barriers to achieving that objective?

6 A. That might very well depend upon the
7 way in which the requirement was worded and the degree
8 of flexibility that was allowed. And the two principle
9 concerns, and these are sort of initial thoughts on the
10 subject, but two principle concerns that come to mind
11 are, is it in terms of capacity or in terms of energy,
12 and it would probably be quite difficult to deal with
13 if it was in terms of capacity because of the
14 difficulty of ensuring that a variable energy source
15 provides dependable capacity at the time of winter
16 peak, which may very well, for instance, for solar
17 technology, winter peak may very well be during the
18 hours of darkness. So that's one concern.

19 The other concern would be a planning
20 concern regarding limitations on flexibility to handle
21 varying loads. One might very well set out to plan to
22 meet 25 per cent of the increase in demand that was
23 expected, but what happens if the demand is higher than
24 is expected and there has to be some provision for
25 flexibility to permit an adjustment time to accommodate

1 actual experience with loads that are different to the
2 forecast.

3 Q. Okay. You mentioned a few minutes
4 ago that part of the accountability would be through
5 the input of the government under the amendments to the
6 Power Corporation Act and also through OEB rate review.
7 In the context of this kind of order, again
8 hypothesizing that there is such an order, how would
9 you see an accountability on that kind of an issue?
10 How have you met, what are the problems you are
11 encountering? Who would you be reporting back to in
12 terms of that kind of an issue?

13 A. I am afraid I am not familiar with
14 accountability mechanisms of accounting for and
15 ensuring that Ontario Hydro meets the conditions of
16 environmental assessment approval. So I am afraid I
17 don't know the answer to that question.

18 Q. Does anyone else have an idea?

19 MS. HOWES: A. Generally under an EA if
20 there are conditions then there is a requirement to
21 report back to make sure that the conditions are met,
22 and often it's in terms of ensuring that an emission
23 control system is operating correctly and then there
24 may be a specified time for monitoring to ensure
25 compliance.

1 I can't really think of it in terms of
2 the question that you suggested. I am not sure I can
3 give you any more specifics.

4 Q. But one could foresee something along
5 those lines, I suppose.

6 A. It is possible. I just can't think
7 of how it might be structured, for example, and what
8 kind of a reporting requirement there might be.

9 Q. Okay. Thank you.

10 Back to you, Mr. Snelson, for a moment.
11 In terms of your answer about the implementation of
12 such an order, how would you go about reviewing, or
13 would you go about reviewing your, for example,
14 research and development strategy and your approach to
15 those issues in the context of the order that we are
16 discussing?

17 MR. SNELSON: A. That is a possibility.
18 I am sure our research program is geared to, among
19 other things, the types of programs that we have under
20 way and supporting them, and so it may very well be
21 that there would be some review of that.

22 Q. Would it be easier if the Board
23 instead of saying 25 per cent of some forecast figure,
24 which obviously is subject to the various vagaries of
25 forecasting, if it were to say something along the

1 lines of, well, a 1,000 megawatts by the year 2000
2 should come from solar sources, would that be an easier
3 way of achieving the objective that I mentioned the
4 Board may have?

5 A. To the extent that a defined quantity
6 removes the difficulties of planning to meet a
7 percentage of an uncertain number, yes.

8 Q. I hesitate to ask you this, but I
9 wonder if you would have any sense whether Hydro would
10 be capable of achieving that kind of an objective?

11 THE CHAIRMAN: I was going to jump in and
12 talk about - is it Exhibit 344 - didn't we go through
13 the potential of solar and what might be achieved?
14 Mind you, there was also built into that cost
15 considerations which presumably if cost were not a
16 factor, the answers might be different.
17 [10:25 a.m.]

18 MR. B. CAMPBELL: I think, Mr. Chairman,
19 you are quite correct, Hydro's position and views on
20 the capability of achieving certain amounts of solar or
21 other alternative energy forms has been thoroughly
22 examined previously.

23 MR. GRENVILLE-WOOD: You made the correct
24 point, Mr. Chairman, that the economic aspect of it was
25 a major condition in the alternative energy review and

1 the question here is more in the context of how do you
2 plan for and meet an objective that may be set from the
3 outside.

4 The question, as I say, I hesitated to
5 ask it, but I am just wondering whether on the basis of
6 Mr. Shalaby's study of the area on whether he or Mr.
7 Snelson could give mean an answer on that, whether they
8 think there is the capability in pure, I guess,
9 technical potential terms to meet that kind of
10 objective?

11 MR. B. CAMPBELL: Mr. Chairman, it is the
12 same question we just talked about; is it not?

13 THE CHAIRMAN: I think perhaps in this
14 context if Mr. Shalaby had something that could be
15 helpful to us about this I would be prepared to let him
16 answer.

17 MR. SHALABY: Going back to Panel 8,
18 there was something similar asked by the government;
19 what if there was a mandate to implement 1 per cent
20 from solar and 1 per cent from wind and we, in fact,
21 produced undertakings that showed what the rate impact
22 of implementing a 1 per cent of the energy supply from
23 solar and 1 per cent of the energy supply from wind.

24 I indicated at the time that 1 per cent
25 is not going to be a small program in Ontario and in a

1 world-wide context. That's going to be a very large
2 program.

3 By the year 2000, 1 per cent of the
4 electricity coming from solar power in Ontario is
5 something that would stretch the capability of
6 world-wide manufacturing. So above that you are
7 stretching it again. I think that is certainly a very
8 large program to put photovoltaics that will supply 1
9 per cent of Ontario's energy.

10 Now, whether it is doable, whether the
11 incentives are going to be high enough for
12 manufacturing companies to come into Ontario or
13 manufacture elsewhere and sell to Ontario, I don't know
14 whether the manufacturing capability would mobilize
15 fast enough and with the quality and expertise that's
16 required to put that in the time frame that you are
17 talking about. I don't know the industry that well.

18 DR. CONNELL: Mr. Shalaby, I think we are
19 drifting back and forth from capacity to energy.

20 It may be we covered this in 344, but
21 could you give us kind of a ballpark number of what
22 capacity factor you would expect?

23 Let's say we are talking about 1,000
24 megawatts under optimal illumination fairly widely
25 distributed, what average capacity factor might you

1 expect?

2 MR. SHALABY: Solar would probably
3 operate somewhere between 10 and 15 per cent. Wind,
4 good sites operate at 15 to 20 per cent, 25 per cent
5 for the very best sites.

6 DR. CONNELL: Thank you.

7 MR. GRENVILLE-WOOD: Q. All right. I
8 wonder if I could refer you now to this intriguingly
9 entitled document, Exhibit 722, the Cinderella Options.

10 I know you haven't had a chance to read
11 it and my suggestion is that I sort of lead you through
12 it a little bit and pose to you a couple of questions
13 with respect to it.

14 There is a brief summary of what Mr.
15 Grubb has to say in this on the front page as well
16 obviously in our abstract. I mean, the essence of it
17 is that there has been a lack of development in the
18 renewable energy, non-hydraulic renewable energy field
19 and then on the second photocopied page, 712 there are
20 a series of separate factors that the author refers to
21 as underlying or explaining the current state of
22 affairs with respect to non-hydraulic renewables.

23 The first one, again on page 712, is
24 there is a primary lack of data concerning some
25 renewable energy resources and uses which leads to an

1 underestimate of both their actual and potential
2 economic contribution to supplies.

3 I suppose I am addressing this to you,
4 Mr. Shalaby, because I think you have emerged as
5 Hydro's solar expert, at least on the panel so far.

6 I don't know whether that's a compliment
7 or not but take it in the spirit in which it is given?

8 MR. SHALABY: A. Last time you called
9 call me friend of the renewable energies and I was
10 happy with that until I realized how lawyers use the
11 word friend. So I don't know.

12 Q. We will discuss that one day. How
13 would you respond to that factor or that barrier
14 identified by the author here?

15 A. I accept that there are gaps in data
16 in certain renewable energies.

17 Q. Okay.

18 A. We mentioned that at some length in
19 Panel 8, particularly about the wind resource here in
20 Ontario, that an accurate determination of wind
21 potential really depends on an accurate determination
22 of the wind resource, and we don't have a very good
23 assessment of the wind resource in Ontario.

24 Q. You indicated that that applies also
25 to some solar technologies?

1 A. I indicated at the time that the
2 uncertainty about the solar resource is a lot less than
3 the wind resource. Wind depends a lot more on local
4 conditions where solar does not.

5 Q. All right. You will notice at the
6 top of the second column on page 713 the author refers
7 to lack of data on non-commercial sources and those
8 which involve transactions outside the main commercial
9 energy routes. It gives as an example, solar water
10 heating and charcoal are often ignored.

11 Now, I know in Panel 8 you referred to
12 the little study you had done on solar hot water
13 heating systems, if I recall correctly.

14 A. It was Panel 4.

15 Q. Was that Panel 4? Is it that far
16 back?

17 A. It has been that far back. You
18 didn't have a beard then.

19 Q. I didn't know you noticed.

20 In any event, do you agree with the
21 statement made here that there is a problem with
22 ignoring of these non-, I guess, main stream data
23 sources?

24 A. I think the ignoring is in data
25 collection for, say, Statistics Canada reports or

1 things of that nature, United Nations statistics.

2 Those energy sources are more difficult
3 to collect aggregate data for, particularly biomass and
4 charcoal in developing countries. People go out and
5 collect firewood and make charcoal and use it and there
6 is not a feasible way of knowing how much of that is
7 exactly used.

8 The nature of the resource is very
9 different than a large oil company that can show the
10 books and show how much oil is imported and refined and
11 sold, for example.

12 Q. All right.

13 A. I think that's what that is referring
14 to. That's how I read it.

15 Q. The point he makes at the end of that
16 paragraph is that combined with limited data and
17 resources this inevitably downgrades renewables in
18 general energy assessment.

19 So, I mean, that's a conclusion he draws
20 and I am not sure that you are necessarily disagreeing
21 with him on a certain number of these renewable
22 technologies.

23 The second --

24 A. I am not agreeing that lack of
25 knowledge of exact number of tonnes of charcoal or

1 biomass degrades that resource or shortchanges it in
2 any way. I don't see the link of lack of exact
3 knowledge of what's happening with the importance of
4 the resource.

5 Q. Well, I think what he is saying, if I
6 can just pick up on that point, what he is saying is
7 that because we can't assess it properly we don't plan
8 to make use of it because we don't have reliable data
9 or we haven't gathered the reliable data in order to be
10 able to make predictions.

11 It is much easier to predict on a
12 resource that we have a better handle on the data for.
13 Anyway, is that a reasonable interpretation?

14 MR. B. CAMPBELL: Mr. Chairman, this
15 paper is in, as I understand it, a world context.

16 Is that the context in which my friend is
17 asking the question. Mr. Shalaby spoke about
18 developing countries.

19 Is it possible that we can maybe bring
20 this back a little bit more to matters that are going
21 to be pertinent to Ontario. Is that the context of my
22 friend's question?

23 The paper certainly is not in that
24 context which he is so generously paraphrasing, I might
25 add.

1 MR. GRENVILLE-WOOD: It seems to me that
2 the question is being posed in the context of
3 California and British experience.

4 If you read the whole column that's what
5 he is referring to in large measure and much of that
6 experience can be translated into Canada. Certainly I
7 agree it is not a Canadian analysis.

8 Anyway, be that as it may I don't
9 necessarily need to pursue this matter any further on
10 that point.

11 How about the second factor which is
12 referred to here and that is an interesting phrase
13 called analytic conservatism.

14 THE CHAIRMAN: I am not sure I know where
15 we are.

16 MR. GRENVILLE-WOOD: We are on page 713,
17 the second column on the right-hand side which is a
18 description of the second factor mentioned on the first
19 page.

20 THE CHAIRMAN: Right, thank you.

21 MR. GRENVILLE-WOOD: Q. One of the
22 benefits of reading this article is it explained to me
23 finally how I describe what this hearing is all about
24 in terms of eating ground glass. It seems to describe
25 what some of us have been going through. I am sure

1 some more than others.

2 In any event, how would you respond to
3 the concept of analytic conservatism as it is described
4 here?

5 In other words, I think he is focussing,
6 if I might just help you a little bit there, with the
7 idea that because these are not mainstream technologies
8 there is a certain amount of uncertainty with respect
9 to the technological development and, therefore, people
10 tend to err on the side of conservatism. That's one of
11 the other factors for not --

12 MR. SHALABY: A. No, I think the erring
13 is on both sides, both conservatism and optimism.

14 You read a lot of studies that project
15 performance and potential and economics that simply
16 haven't materialized and are not likely to materialize
17 and you read other studies that are really down on some
18 of the technologies and perhaps they are conservative.

19 So I don't think you can find a uniform
20 trend that all studies to do with renewables are
21 conservative or all lessons are conservative. You see
22 both sides of the fence being available to
23 policy-makers.

24 Q. So, if I understand you correctly,
25 what you are saying then is that over-optimism on one

1 side is being balanced by over-conservatism on the
2 other?

3 A. I don't know balanced or not, how
4 many are more conservative and how many are more
5 optimistic, but this very paper I think in the early
6 passages of it says that in the Carter years they were
7 expecting 20 per cent of the US energy to come from
8 renewables by the year 2000.

9 Was that optimistic or conservative? It
10 hasn't happened and they are saying we are not going to
11 even make of half of that. That's what the paper here
12 says.

13 Q. I agree with you it says that, but
14 then it gives a very good reason why that happened.

15 A. I am saying, that is not
16 conservative. Those were studies that overestimated
17 the potential of renewables.

18 Q. But the point was I think, and you
19 will find it in here I'm sure, I can refer it to you
20 specifically if you wish, that there were policies put
21 in place after those -- those estimates that were made
22 with regard to renewables at the time of the Carter
23 administration were based on programs in place which
24 subsequent administration tore down.

25 [10:40 p.m.]

1 So the point I think was that the
2 optimism isn't necessarily with respect to the
3 technology, over-optimism, it was in a different
4 context. I think he deals with that later when he
5 talks about this business of vision.

6 But I just want to stay with this
7 question of conservatism.

8 Can I draw your attention to page 714,
9 which is the next page, it deals with the IIASA
10 studies. Then at the first paragraph, complete
11 paragraph along of the left-hand side on page 714, the
12 author refers to a striking example of this
13 conservative, analytical conservatism, was the TASE
14 project.

15 And in the third sentence he says:

16 "Apparently also in keeping with the
17 time, the analysis adopted the peculiar
18 assumption that the fledgling renewable
19 technologies would remain fledgling."

20
21 How do you respond to that kind of
22 commentary on the way, for example, Ontario Hydro has
23 locked at fledgling technologies?

24 A. This is somebody's comment about a
25 particular study. I don't know enough what they meant

1 by assuming fledgling technologies would remain that
2 way, and I am not sure whether Ontario Hydro has any
3 commentary any that regard either.

4 Q. Well then, do you believe --

5 MR. B. CAMPBELL: Just a minute. This is
6 just a little bit unfair, I think.

7 My friend keeps sort of pushing one side
8 of this argument. He is the only one who has the
9 chance to read this paper. I looked down this paper a
10 little farther and I see that about 10 lines from the
11 bottom is the clear statement after saying, overall it
12 seems that official assessments appear optimistic, that
13 appear optimistic in a rather small minority, but the
14 paper itself goes on and says, it's equally true that
15 independent assessments have often proved optimistic.
16 Strangely enough, this is what Mr. Shalaby said.

17 My friend is the only one who has had a
18 chance to read this. If he is going to paraphrase the
19 results of the paper, we are entitled to have him do it
20 fairly.

21 MR. GRENVILLE-WOOD: With all due
22 respect --

23 THE CHAIRMAN: I think you can't use the
24 paper anyway, it's not evidence of anything, other than
25 to try and elicit from these witnesses their own views

1 about some of these matters.

2 I think it is better to perhaps put the
3 paper away and just ask them questions about what they
4 think about their own analysis.

5 Again I think this is a matter that was,
6 if my recollection is correct, quite thoroughly
7 canvassed in Panel 8.

8 MR. GRENVILLE-WOOD: I agree with you,
9 Mr. Chairman, and I think perhaps I am only trying to
10 elicit some comments on this these factors which this
11 author has identified, these four factors. I am using
12 that as a guide post, just the four factors. I am not
13 trying to put to Mr. Shalaby --

14 THE CHAIRMAN: I am not critical of that.
15 You have got his views about gaps in data, you have got
16 his views about whether analysis is conservative or
17 optimistic, and now perhaps there is some other factors
18 you might want to talk about.

19 MR. GRENVILLE-WOOD: Q. What about the
20 third one, Mr. Shalaby, which he calls transfer
21 ignorance, and you will find that on page 714, second
22 column. And let me just read that to you just to try
23 to define it for you.

24 "The factors noted above render
25 attempts to quantify the long-term

1 potential of renewable sources inevitably
2 uncertain, but the situation is as much a
3 reflection of the low status of renewable
4 energy as a reason for it. Different
5 kinds of ignorance contribute to this low
6 status, of which a major part is the
7 failure of existing knowledge to be
8 transferred to those in the realm of
9 energy policy analysis and formation."

10 Now, the issue there is, are you
11 satisfied from Hydro's point of view that the knowledge
12 and understanding of the potential of the renewable
13 energies, excluding major hydraulic and even small
14 hydro, that this is being transferred in sufficient
15 detail and so on to the policy-makers within the Hydro
16 system?

17 MR. SHALABY: A. Yes, I am satisfied.

18 Q. Okay. And could you tell me in what
19 way that's being done, what sort of process is followed
20 and how you --

21 THE CHAIRMAN: Isn't the answer to that
22 Exhibit 344?

23 MR. GRENVILLE-WOOD: Yes.

24 MR. SHALABY: We prepared our assessment,
25 our views of the technologies and these are Corporate

1 documents that are available to senior executives.

2 They are aware of their assistance and aware of the
3 conclusions.

4 THE CHAIRMAN: Again I say, and perhaps
5 unnecessarily, that that doesn't mean it's good enough
6 but that's the best that they have to offer at the
7 moment.

8 MR. GRENVILLE-WOOD: Yes, Mr. Chairman, I
9 agree.

10 Q. The point I want to pursue a little
11 further with you is because of what Mr. Snelson
12 indicated earlier was a preferential approach, I know
13 we have discussed the 10 per cent preference and so on,
14 but in terms of at the policy level, do you foresee in
15 terms of your planning any further initiatives in the
16 area of fostering, I suppose is the word to use, the
17 transfer of knowledge from the people who are doing the
18 analysis into the policy-making and the planning
19 process?

20 MR. SHALABY: A. Yes, I do.

21 Q. Could you tell me how?

22 A. It's an ongoing part of our business
23 to inform policy-makers and decision-makers and our
24 Board of directors of the options available to Hydro,
25 and there are things like of the Technical Advisory

1 Board, Advisory Committee to the board of directors,
2 there are continuing reports going to senior management
3 on topics like demand management options and supply
4 side options, and all kinds of technical matters and
5 environmental matters.

6 So that comes up on a regular basis as an
7 ongoing part of our business.

8 Q. Now, in terms of -- you say you are
9 fostering this now through the technical advisory
10 committee and other channels, are you planning in this
11 process to involve outside people, for example, one
12 might imagine people who are involved in the either
13 provision of or the research into these particular
14 technologies in providing information on this kind of
15 process?

16 A. That is already under way.

17 The Ministry of Energy has something
18 called the Renewable Energy Council, I think is the
19 last name I remember of that council, that includes
20 people from the solar energy from the wind energy
21 industry and from various other biomass and non-utility
22 generation industry, and it's a group that advises the
23 policy-making circles in the province. And there are
24 reports and Ontario Hydro sits in that group and
25 contributes and listens and participates.

1 So that's a forum in which the people who
2 are practitioners in the industry advise the
3 policy-makers.

4 Q. All right. So you are relying on the
5 Ministry of Energy Renewable Energy Committee, but I
6 was asking whether you have any plans within Hydro but
7 that's your channel for that group?

8 A. I think duplication of these things
9 is not always desirable. If there is an effective
10 channel already in place and working we tap into it,
11 yes.

12 Q. Okay. Now the fourth and final
13 factor referred to is the one that Grubb refers to as a
14 failure of vision. And again to describe it rather
15 than necessarily put any blush on it, the best way of
16 doing that is to read from the text, and I don't want
17 to offend Mr. Campbell, but let me try and see whether
18 this second sentence of the first paragraph on page 715
19 does it adequately. It starts:

20 "Similarly, the most striking feature
21 of the current debate is not the
22 pessimism of technical assessment, but
23 the low profile of renewables in
24 projections and debate, often in sharp
25 contrast to recent technical studies.

1 This points to a phenomenon which might
2 be termed a failure of vision."

3 And the author goes on to deal with,
4 interestingly enough, some Japanese examples.

5 I would just like to you comment, if you
6 would, on that factor from the Hydro perspective. I
7 don't want you to admit to any failings on the part of
8 Hydro, I think that will be too much to expect. If you
9 have any comments, I would appreciate having them.

10 A. The sentence perhaps you will comment
11 on is that, but the low profile of renewables and
12 projections and debate, is that --

13 Q. The whole thing. Similarly --

14 A. "The most striking feature of the
15 current debate is not the pessimism of
16 technical assessment, but the low profile
17 of renewables in projections and
18 debate...This points to a phenomenon
19 which might be termed a failure of
20 vision.

21 I can't help think, and we have seen it
22 in this hearing, that proponents of various energy
23 sources, and we have seen the gas industry for example,
24 the gas industry can take this paper and instead of
25 renewables put natural gas and the argument will fit

1 exactly that people don't understand, they are ignorant
2 of the data and there isn't enough information, they
3 don't debate it as much and they don't give it the fair
4 shake. People in the nuclear industry can take it and
5 make the same argument again, that people have
6 ignorance of the data, ignorance of the potential, and
7 on a world-wide basis the potential is underestimated
8 and pessimistic.

9 I just think that when one has a
10 perspective of promoting a particular energy source as
11 the tone of this article seems to be, that is a
12 standard line that people will take. Their view is not
13 reaching the policy-makers in sufficiently convincing
14 manner to rule in their favour. I can't agree with
15 that.

16 I think that the debate on renewable
17 energies is alive and is something that we have seen
18 here in this hearing, we have seen in our documents, we
19 read about in energy policy papers and energy policy
20 documents continuously. So I can't agree that the
21 debate ignores the renewables or their potential, nor
22 does it ignore the gas and its potential, nor does it
23 ignore any other energy source.

24 Q. Would you not agree, though, and we
25 have discussed this in a number of panels already,

1 would you not agree, though, that the analysis of this
2 kind of a position stems from the fact that renewables
3 are not being given the sufficient profile in the
4 planning process? Renewables excluding again
5 hydraulic. Would that not be the reason why people are
6 putting forward these arguments? It's not just that
7 they are trying to promote an industry.

8 A. We hear the views exactly contrary to
9 that, that there is too much time and energy devoted to
10 the study of matters that will not likely make any
11 contribution to the future energy of Ontario. Some
12 people say that have we have studied it before, we know
13 what the potential is, what the economics are, why are
14 we spending so much more time and energy on that?

15 So you hear both of views on both sides,
16 you are spending too much time on it, you are spending
17 too little time on it.

18 Q. So can I draw then from your answer
19 that you would think that there is no failure of vision
20 on the part of Hydro in this context?

21 A. I don't accept that view. The fact
22 that the verdict at the end is not as favourable to
23 renewables as the industry wants it to be is not to be
24 explained that way at all.

25 Q. So you are saying there is no failure

1 of vision?

2 A. Failure of vision is too catchy. I
3 don't know what is meant by that. But I am saying that
4 renewables are being considered on a thorough basis in
5 the planning process, and the way this fits in our
6 plans is reached after a considered and deliberate
7 analysis of its potential and its economics.

8 Q. All right. On page 716, the column
9 on the left-hand side, the top, the paragraph that
10 starts:

11 "The divide lies more between the
12 technical assessors and the general
13 energy policy and political communities."

14 As a last question, I wonder if you could
15 just read that paragraph and just give me a comment on
16 it, if you have don't mind. I won't read it into the
17 record or perhaps I should. I will read it again.

18 The divide lies more between the
19 technical assessors and the general
20 energy policy and political communities.
21 The idea that non-Hydro renewable sources
22 might, on foreseeable timescales,
23 contribute substantially to energy
24 supplies in industrialized countries
25 seems to be so far from the conventional

1 wisdom that information indicating this
2 is often discounted. The skepticism born
3 of past disappointment is compounded by
4 the historical focus on large centralized
5 systems which makes it very hard to
6 conceive of major supplies being gained
7 from many relatively small dispersed
8 inputs, which are typical of many
9 important renewables. The gap between
10 perceived and actual potential is, in the
11 author's view, growing dangerously wide.
12 Technological advances, and in some cases
13 breakthroughs, are certainly needed: but
14 the revolution required is one of the
15 attitudes."

16 Now, the article goes on at some length
17 about prescriptions to address these four factors and
18 so on, I won't take up the time of the Board, but I
19 just wonder if you have a comment on that particular
20 sort of summary of the state of play.

21 A. My personal view is that it takes a
22 lot more than change in attitudes to make a technology
23 become widespread and used in a widespread way. It
24 takes fundamentals to improve rather than just
25 attitudes. Attitudes follow or are close to the actual

1 performance of a particular technology and the actual
2 potential for it. Attitudes alone cannot pull this
3 off, that is all I am saying.

4 [10:57 a.m.]

5 Q. Going back to that original series of
6 questions, would you say that Hydro approaches these
7 issues - a question put forward here - in a neutral way
8 trying to be persuaded or does it have an active role
9 to play in fostering these kinds of technologies? I am
10 talking generally about renewables.

11 A. In an open way or -- what is the
12 other way?

13 Q. In a neutral way. In other words, as
14 if one would say you are from Missouri, show me how
15 this works.

16 A. I think Hydro is interested in any
17 option that would promote good service to our
18 customers, that if these options promote that we are
19 going to be interested in them.

20 MR. GRENVILLE-WOOD: Thank you. Those
21 are my questions, Mr. Chairman.

22 THE CHAIRMAN: Thank you.

23 Mr. Wright, you are next.

24 Thank you, Mr. Grenville-Wood.

25 MR. WRIGHT: Good morning.

1 CROSS-EXAMINATION BY MR. WRIGHT:

2 Q. The questions surround, in the
3 beginning, the board of directors. How many members is
4 the board authorized to have?

5 THE CHAIRMAN: The Hydro board of
6 directors you are talking about?

7 MR. WRIGHT: Yes.

8 THE CHAIRMAN: Maybe nobody knows the
9 answer to that.

10 MR. WRIGHT: I wondered about this. The
11 paper that I supplied my concerns was very direct in
12 its approach. I can't understand why it can't be
13 answered, but I will take it on advisement if that's...

14 MR. B. CAMPBELL: I can find out the
15 number shortly. The Act has just been changed. I
16 believe in its final form they added two which would
17 take it somewhere in the neighbourhood of 18, 19.
18 Somewhere in there.

19 THE CHAIRMAN: About 18 or 19.

20 MR. WRIGHT: I think I would like the
21 answer as it was before the Act changed.

22 MR. B. CAMPBELL: Fine, I can find out.

23 THE CHAIRMAN: We may just have the
24 answer here.

25 MR. B. CAMPBELL: What a team. The board

1 of directors in its revised form will consist of a
2 chair, a vice-chair, president, Deputy Minister of
3 Energy and not more than 18 other directors.

4 THE CHAIRMAN: Not more than 18?

5 MR. B. CAMPBELL: Not more than 18 other
6 directors.

7 MR. WRIGHT: Other directors. So how
8 many does that bring it to?

9 MR. B. CAMPBELL: Chair, vice-chair,
10 president, Deputy Minister of Energy is four and not
11 more than 18 others which is 22.

12 MR. WRIGHT: Number of Hydro staff
13 excluding the chairman that are on the board in the
14 context of the original 22 before the Act changed.

15 MR. B. CAMPBELL: This is after the Act
16 was changed, I'm sorry, that I just gave to you. If
17 you want before I am going to have a look it up.

18 MR. WRIGHT: Is there a process for
19 getting back to me on the answer.

20 THE CHAIRMAN: They are getting you the
21 answer.

22 MR. B. CAMPBELL: Up until the time that
23 the Act changed, and I am not sure when the Royal
24 Ascent is planned but it must be very shortly, in any
25 event before the Act changed the board of directors

1 consisted of a chairman, a vice-chairman, a president
2 and not more than 10 other directors.

3 Now, just a minute. There was an
4 amendment in between. I am going to have to find the
5 amendment in between if you want the exact number.

6 My impression, Mr. Chairman, is that
7 there were about two persons being added to this so we
8 are talking two or three bodies smaller than the new
9 provision that I added, but we will get the exact
10 number and within the next half hour we will have it.

11 MR. WRIGHT: Thank you.

12 THE CHAIRMAN: Fine. Now we want to know
13 how many of those current directors or management
14 directors; is that right?

15 MR. B. CAMPBELL: Of the current
16 directors?

17 MR. WRIGHT: Of the 20 before this change
18 because obviously the appointments haven't been made
19 yet. Of the 19 or 20 directors how many are Hydro
20 staff not including the chairman?

21 MR. B. CAMPBELL: It would be only the
22 chair and the president.

23 THE CHAIRMAN: There is no other
24 management directors; is that correct?

25 MR. B. CAMPBELL: No.

1 THE CHAIRMAN: Okay.

2 MR. WRIGHT: Q. How many committees does
3 the Board have? Is that a filed...

4 MR. SNELSON: A. We believe that these
5 matters as they currently exist are listed in our
6 annual report.

7 Q. The committees and the names, okay.

8 THE CHAIRMAN: You didn't ask about the
9 names. You asked about the committees.

10 MR. WRIGHT: The names of the committees,
11 sorry.

12 THE CHAIRMAN: The names of the
13 committees?

14 MR. SNELSON: Our recollection is that
15 the names are included, but I believe somebody is
16 checking that.

17 THE CHAIRMAN: Let's be clear. You mean
18 the title of the committee, like the planning committee
19 or whatever they have.

20 MR. SNELSON: Certainly the titles of the
21 committee are in there. The item I am personally not
22 entirely sure of is whether it specifies the names of
23 the directors who are on each committee. It probably
24 does.

25 MR. WRIGHT: I was only interested in the

1 title of the committee and the number on it.

2 MR. SNELSON: I believe that information
3 is in the annual report.

4 MR. WRIGHT: Q. Are there any non-board
5 members on committees?

6 DR. LONG: A. They are all committees of
7 the board, so they are all made up of just board
8 members.

9 Q. How many meetings does the Board have
10 in a year?

11 A. Its general schedule is to have one
12 normal meeting a month, but there are may be special
13 meetings at various times.

14 Q. And the committees? Would it be to
15 possible to get back to me on the number of --

16 THE CHAIRMAN: Why do you need to know
17 that, Mr. Wright?

18 If it is like most corporations, the
19 committees meet when they have got something to do and
20 they don't when they don't. There is no usual pattern
21 except perhaps for some key committees which have
22 regular meetings.

23 Why do you need to know this?

24 MR. WRIGHT: There is a body of
25 discussion growing today that it is lack of attention

1 of the board that causes organizations to be less
2 effective in delivering than they otherwise could be.

3 THE CHAIRMAN: Well, you are talking
4 about Ontario Hydro specifically?

5 MR. WRIGHT: Yes.

6 THE CHAIRMAN: Perhaps you can direct
7 your questions in that area, but I don't see much point
8 in trying to find out how often the committees meet.

9 MR. WRIGHT: Q. I would like to find out
10 the average thickness of paper that is given to each
11 board member per meeting over an annual basis?

12 THE CHAIRMAN: You are not going to find
13 that out. I am not going to order them to give you
14 that information.

15 I don't consider it to be in any way
16 meaningful. In fact, I would suggest that the less
17 paper you get the more effective most directors would
18 be.

19 MR. WRIGHT: I concur which is what I am
20 trying to demonstrate, that I would suggest it is
21 probably the reverse.

22 THE CHAIRMAN: I am not going to order
23 that.

24 MR. WRIGHT: Q. Could I have the number
25 of vacancies at the time of the appointment of the

1 current president?

2 MR. B. CAMPBELL: I am not going to --

3 THE CHAIRMAN: The board of directors you
4 mean?

5 MR. WRIGHT: Yes.

6 THE CHAIRMAN: I don't think we can give
7 that information either. It is not relevant.

8 MR. WRIGHT: Q. Is there any wording in
9 the Act or anything that specifies who has control, the
10 chairman or the board?

11 THE CHAIRMAN: Perhaps, Mr. Campbell, you
12 can help Mr. Wright on that. I think there has been a
13 change in that.

14 MR. B. CAMPBELL: That is correct, Mr.
15 Chairman. The chair of the board is to become, on the
16 passage of the legislation, the chief executive officer
17 of the Corporation and the duties are set out in the
18 new legislation.

19 MR. WRIGHT: Q. I am unclear if a
20 majority vote of the board would overrule a decision by
21 the chair.

22 MR. B. CAMPBELL: Well, Mr. Chairman, I
23 invite my friend to read the legislation as it applies
24 to the governance of the board.

25 MR. WRIGHT: Q. Could I have an

1 organizational chart that would be not more than one
2 page but go down to about the fourth level, taking the
3 president as the first level.

4 MR. B. CAMPBELL: Yes, I believe it is in
5 the last issue of Hydroscope which is the Corporation's
6 newspaper. It goes down to the directors levels.

7 Now, that is not the board of directors.
8 This is a position known as directors in the
9 Corporation and we can provide that.

10 MR. WRIGHT: Thank you.

11 Q. Is it possible to find out whether
12 there has been any discussion on the board about the
13 effectiveness of such a large board.

14 MR. B. CAMPBELL: No. I will not
15 undertake to make such an inquiry, Mr. Chairman.

16 The matter of the make-up of the Board
17 has been reviewed recently. To the extent that that
18 issue is being considered, and I am not saying it has,
19 the government has considered and its conclusions are
20 reflected in the legislation.

21 There are committee hearings on the bill
22 and if my friend wants to peruse that and find out
23 whether that matter was raised he can do so, but I will
24 not undertake to do so and I see no reason why we
25 should be asked to do so.

1 MR. WRIGHT: Q. On the issue of your
2 hiring intake each year, do you grade them?

3 THE CHAIRMAN: What exactly do you mean
4 by that?

5 MR. WRIGHT: Hiring intake of new
6 engineers.

7 THE CHAIRMAN: Yes, but what do you mean
8 by grading them?

9 MR. WRIGHT: Well, at the point I imagine
10 that they would hire them they would only be able to
11 use marks.

12 THE CHAIRMAN: You are talking about
13 their method of selection of new employees? Is that
14 what you are talking about?

15 MR. WRIGHT: Specifically the engineers,
16 yes.

17 MR. B. CAMPBELL: No one on this panel is
18 going to be able to answer the question I am sure, Mr.
19 Chairman.

20 THE CHAIRMAN: I am not quite sure what
21 you are getting at here, Mr. Wright.

22 MR. WRIGHT: Well, the following
23 questions are to find out whether what level -- once
24 there is a group then they can be broken into quartiles
25 and I would like to find out whether the postings to

1 nuclear, to hydro and to other non-nuclear and
2 non-hydro areas, how that is broken down, whether the
3 best and the highest is streamed in a certain area.

4 MR. B. CAMPBELL: Mr. Chairman, we have
5 described the various work throughout the panels that's
6 done in respect of each of the options.

7 I think Hydro's resources reflect the
8 work that's being done and that has been described and
9 I do not see how it could possibly be relevant to go
10 into a human resources analysis of how new hires are
11 streamed. I mean, that by itself is only going to
12 lead -- cannot be useful to the Board.

13 It ignores completely the other side,
14 various other sides of this equation which are the
15 changes in the internal structure which, as we have
16 heard already, in one branch has been substantial in
17 the course of this hearing.

18 It ignores retirements, it ignores a
19 whole lot of other things. The whole basket of things
20 I say are not relevant to your inquiry. We have
21 described the options, the characteristics and their
22 role in planning and that is the essence of the matter
23 before this Board.

24 THE CHAIRMAN: I don't think it would be
25 helpful to us, Mr. Wright, to have details of the human

1 resources techniques of the proponent.

2 If you have any questions that these
3 panel members and the planning techniques and matters
4 of that kind, I think that's what we are here to do.

5 MR. WRIGHT: In my perusal of what was
6 available to me to ask Ontario Hydro questions I could
7 only see that Panel 11 was the area that dealt with the
8 overall administration of Ontario Hydro, where it is my
9 and going to be my focus that the ills and
10 misdirections, if any, exist more from an overall
11 misfocus and misallocation of resources rather than any
12 intermediate mistakes and that these can be sensed and
13 seen through an allocation of resources.

14 Now, if I have missed my correct panel
15 I'm sorry. I am really here not for 10 but for 11.

16 THE CHAIRMAN: What you can do here and
17 what we are doing here is talking about the way Hydro
18 makes its plans to provide electrical energy under its
19 mandate of the statute.

20 Now, these witnesses are here and they
21 are familiar with how that is done. If you have
22 questions about that and that process, because your
23 thesis is that there is something inadequate about
24 that, then this is the time to ask those questions, but
25 how they go about selecting their employees, what

1 techniques they use in their engaging of personnel and
2 how they move personnel around within the organization,
3 that is something that I think is beyond of scope of
4 what we are interested in here.

5 MR. WRIGHT: Okay.

6 Q. Does Ontario Hydro have a mission
7 statement?

8 MR. SHALABY: A. Yes, it does.

9 Q. When was this mission statement
10 prepared?

11 A. We have had a mission statement for
12 large number of years. It is quoted, for example, in
13 our presentations to the Select Committee on Energy
14 and in various documents to do with strategy. So
15 that's mid 80s at least and before that perhaps.

16 Q. Is it in a form that can be given to
17 me easily?

18 A. Here it is. As good corporate
19 employees we have the mission statements right in our
20 pockets here.

21 THE CHAIRMAN: Carried next to your heart
22 at all times.

23 MR. SHALABY: Absolutely.

24 MR. DALZIEL: Bullet proof.

25 MR. WRIGHT: Is that copy expendable?

1 May I have it?

2 MR. B. CAMPBELL: I would be pleased to
3 transport it from Mr. Dalziel to the cross-examiner,
4 and at the same time I would like it record in the
5 transcript that I am providing him with a copy of the
6 last annual report of Ontario Hydro which sets out the
7 current make-up of the Board, its committees and has
8 organizational information down to the fourth level.

9 I have disposed of my undertakings.

10 THE CHAIRMAN: The mission statement is
11 news to me. This is something I never heard of before,
12 at least I can't remember. So perhaps the mission
13 statement ought to be filed as an exhibit now that it
14 has been mentioned.

15 MR. WRIGHT: I would like to suggest
16 that. I mean, I am now up to two exhibits.

17 MR. B. CAMPBELL: We would be quite happy
18 to provide the Board with copies.

19 THE CHAIRMAN: Mark the last two
20 documents as the next exhibit then.

21 MR. WRIGHT: Can the exhibit we filed be
22 separate from this one.

23 THE CHAIRMAN: You want to keep that for
24 yourself. Mr. Campbell will get us copies.

25 Would you just give us a number, please.

1 THE REGISTRAR: 723.

2 ---EXHIBIT NO. 723: The Corporate Directions: Ontario
3 Hydro.

4 MR. B. CAMPBELL: Mr. Dalziel, would you
5 make a note of the exact document that you gave. There
6 are a variety of corporate documents that are prepared
7 in more or less detail and I just want to make sure you
8 can get additional copies.

9 Thank you, Mr. Chairman.

10 MR. WRIGHT: Q. I read in here a word
11 that I had in my notes and a phrasing that I came
12 across in some of my earlier reading, that one of
13 Ontario Hydro's missions is to supply economic coal
14 power and I have also read that that was used as a
15 rationale for not installing scrubbers.

16 So I wonder if you are prepared to
17 comment on that.

18 MS. HOWES: A. Could you read the phrase
19 you referred to. I don't recall seeing that, but it
20 has been a while since I have looked at that particular
21 document.

22 Q. Ontario Hydro will meet this need,
23 the need being:

24 Our continuing purpose at Ontario
25 Hydro is to contribute to the enhancement

1 of the quality of life of the people of
2 Ontario by serving their energy needs.
3 We will meet this need reliably,
4 economically and with sensitivity.

5 Now, in the things that I read this was
6 used as a reason for not putting scrubbers into plants
7 that were built in the last 10 years.

8 [11:20 a.m.]

9 A. I'm afraid I am still a little
10 unclear about your question. Is it the sensitivity
11 word that you are wondering about or...

12 MR. B. CAMPBELL: Mr. Chairman, if he is
13 referring to some other document where he is saying
14 that Hydro has taken the position that it will not
15 install scrubbers as a result of this mission
16 statement, not only would I be astounded, but I think
17 the witnesses are entitled to have that reference,
18 particularly given the acid gas control program that
19 was testified to on Panel 8.

20 MR. SHALABY: Maybe for information,
21 Hydro's updates plan shows up to 12 scrubbers, all of
22 Nanticoke and all of Lambton is shown in the plan to
23 have scrubbers retrofit over the next several years.
24 I don't know whether you are aware of that particular
25 update or not.

1 MR. WRIGHT: Q. Yes.

2 MR. SHALABY: A. I can't say see that to
3 be a reason for not putting scrubbers. We are putting
4 scrubbers on practically all the major units that are
5 going to be in-service for a long period of time.

6 Q. I was referring to the last 10 or 12
7 years.

8 MR. SNELSON: A. Ontario Hydro has
9 substantially reduced it's emission of sulphur dioxide
10 over the last 10 years very substantially, and that has
11 been done by other means than scrubbers.

12 Q. My point is that the need to reduce
13 was caused by the lack of investment in the first place
14 due to the stance that it needed to be economical and
15 at that point cleanliness wasn't regarded with the same
16 viewpoint as it was today.

17 MS. HOWES: A. I don't think I would
18 support that statement.

19 I think we were looking at a number of
20 options to reduce SO(2), to reduce acid gases, and the
21 options we considered were use of low sulphur coal and
22 other fuel sources, et cetera. And to add to something
23 that Mr. Shalaby has said, we currently have a pair of
24 scrubbers under construction at Lambton. So we looked
25 at full range of options and I think those were

1 discussed in Panel 8.

2 Q. You have priorities for reviewing
3 your decisions; is that true?

4 MR. SNELSON: A. Are we now talking
5 about the Demand/Supply Plan?

6 Q. Yes.

7 A. We have outlined and I outlined in my
8 direct evidence the priority strategic directions which
9 is a broad summary of the more detailed strategy, and
10 that does move some way towards establishing
11 priorities.

12 Q. And they flow from this mission
13 statement?

14 A. They flow directly from the
15 demand/supply planning strategy, which is Exhibit 74.

16 Q. Is that linked to the mission
17 statement?

18 A. It's loosely linked to the mission
19 statement. It's a lot more specific in that the
20 mission statement is regarding the overall business of
21 the Corporation, and activities of the Corporation and
22 demand/supply planning strategy is focussing on how do
23 you chose demand/supply options.

24 Q. So could you follow it down from here
25 to Exhibit 74?

1 A. We believe it's consistent. I'm not
2 sure that one can establish a one to one correspondence
3 between statements in the mission statement, which it
4 is a while since I have read, and the demand/supply
5 planning strategy.

6 Q. These priorities that you have, are
7 they set up in a layered form where if, for example,
8 cleanliness is before cost, then you look for the most
9 economical way to have major cleanliness, or are they
10 priorities that are all on the same level and you look
11 along the table and decide which one you want to go
12 with this year?

13 A. I don't think that's quite the choice
14 that's available.

15 Specifically, the priorities I was
16 referring to were priorities for the selection of
17 demand and supply options, and that was the first of
18 our overheads in the overhead package, which is page 1
19 of Exhibit 682.

20 These priority strategic directions are
21 to maintain and improve the existing and committed
22 facilities and adding scrubbers if required to existing
23 facilities is consistent with that first priority
24 strategic direction, to aggressively pursue economic
25 demand management options, and in some circumstances we

1 have considered that to be the top priority for new
2 options.

3 The next priority is to encourage
4 non-utility generation, then to undertake the orderly
5 development of the remaining hydroelectric potential,
6 and those are all reasonably preferred options. And
7 the last option that and definitely the least preferred
8 option is major supply options, and our direction in
9 that regard is to keep the major supply options open to
10 be able to use them if and when they are required and
11 there isn't sufficient from the other options. So I
12 was referring to priorities with respect to the
13 selection of options.

14 Q. So one of the things I heard is that
15 you either have or are looking closely at putting
16 scrubbers on existing plants.

17 A. That is a matter which Ms. Howes
18 testified to and has taken considerably increased
19 prominence in the Update to the Demand/Supply Plan.

20 Q. Can I read from that, that there has
21 been a significant shift in the priorities that would
22 have caused these plants to be built without scrubbers
23 in the first place?

24 A. Well, I think I want to distinguish
25 two things.

1 The plants were built, and we are talking
2 about principally Lakeview, Nanticoke and Lambton, are
3 the three big coal-fired plants, and they were built in
4 the 1960s and the 1970s, and at time that they were
5 built it was not considered normal practice to add
6 scrubbers to plant. That was something that the long
7 range transport issue was an evolving scientific issue
8 in the 1970s, that by the late 70s and early 80s had
9 come to the point where action was starting to be taken
10 to reduce sulphur dioxide emissions because of the long
11 range transport problem.

12 Q. Weren't there two built or one built
13 up in the north somewhere without scrubbers--

14 A. Yes.

15 Q. --after that time frame?

16 A. Atikokan is the most recent
17 coal-fired plant, it's 200 megawatts, which is about
18 1/20th of the size of Nanticoke. Sulphur dioxide
19 control for that plant is achieved by using lignite as
20 a fuel which is a very low sulphur form of coal.

21 So low sulphur coal was the chosen way of
22 reducing sulphur dioxide emissions in that case.

23 Q. So scrubbers are not a necessity for
24 that plant?

25 A. That was our view at that time and

1 that's how we continue to operate the plant.

2 Q. Given your increased environmental
3 stance, has the mission statement been redone?

4 A. Not to my knowledge.

5 Q. Okay. How does that allow us to
6 evaluate your commitment to environmental cleanliness
7 over cost?

8 MS. HOWES: A. I am not sure that I
9 would characterize it as a commitment to environmental
10 cleanliness over cost. Both issues are significant
11 obviously.

12 I think in my direct evidence I indicated
13 changes since 1989 Demand/Supply Plan to the Update and
14 there have been changes, certainly.

15 I think there is an expectation certainly
16 of public and government that environmental management
17 or management of environmental issues is more
18 significant now.

19 I think you will see, if you compare the
20 Demand/Supply Plan and the Update, a movement in that
21 direction.

22 We have also issued as part of this
23 hearing process Hydro's annual environmental
24 performance report which is essentially a report card
25 on how we are performing from an environmental point of

1 view, and that's issued on an annual basis, and I think
2 we began producing those in 1989.

3 So I think you can see a progression in
4 terms of our environmental performance through
5 reviewing those documents.

6 Q. But this has not yet been deemed
7 sufficient for you to recast your mission statement?

8 A. I don't recall exactly what the
9 mission statement is, so it's hard to know what exactly
10 you are referring to.

11 Q. Thank you. Is it possible to find
12 out if there has been any discussion at the board about
13 a comprehensive audit?

14 THE CHAIRMAN: I'm sorry, a what?

15 MR. WRIGHT: A comprehensive audit.

16 THE CHAIRMAN: Comprehensive audit of
17 what?

18 MR. WRIGHT: Of Ontario Hydro.

19 THE CHAIRMAN: There is a financial audit
20 done annually by an independent auditor. That's not
21 what you are referring to.

22 MR. WRIGHT: No.

23 THE CHAIRMAN: What are you referring to?

24 MR. WRIGHT: No, in the last 10 to 15
25 years there has been a large growth specifically and

1 especially for Crown corporations in an activity called
2 comprehensive auditing where the attention of the
3 auditors are focussed on checking the accountability of
4 the Corporation to its activities, which given that it
5 is Crown are more likely not to be able to be measured
6 in pure financial terms.

7 THE CHAIRMAN: Are you familiar with this
8 term, Dr. Long?

9 DR. LONG: Yes, I am somewhat familiar
10 with it.

11 Inside Ontario Hydro as part of our audit
12 division we have a group calmed the Operational Audit
13 Department which does these audits continuously and has
14 done them for, I am not sure how long, probably the
15 last 15 years. So it's been an ongoing activity.

16 In fact, Hydro is at the forefront of
17 this type of auditing.

18 MR. WRIGHT: Q. Before the days of
19 external financial audits corporations did internal
20 financial audits until it was realized that the
21 constituency of the corporation needed an external
22 viewpoint, and to this extent there is now a large
23 foundation. It is an activity that is carried on
24 regularly by the big six or the big eight.

25 And I am asking Dr. Long, I guess, if

1 there has been any discussion at a senior level about
2 expanding to an external reporting basis the
3 comprehensive audit approach?

4 DR. LONG: A. I think in direct answer
5 to your question, I'm certainly not aware of any.
6 Although over the past five years there was a very
7 comprehensive study of the Corporation done by an
8 outside consulting company, namely CRESAP, and
9 certainly I don't know whether it's been mentioned at
10 this hearing, but certainly at the OEB hearing there
11 has been a great examination of the results of that
12 study.

13 Q. CRESAP came up in my Panel 9
14 cross-examination.

15 This would seem to deal, would it not,
16 with the issues raised by the previous cross-examiner
17 on accountability, where this kind of thing is what
18 comprehensive auditing is really set up to deal with;
19 do you agree?

20 MR. SHALABY: A. Agree with what
21 particular premise?

22 Q. There were some questions in the
23 cross-examination before mine about accountability of
24 your actions up against rulings that are made.

25 A. Yes.

1 Q. And there was some hesitancy in your
2 part, I perceived, about how the accountability process
3 worked?

4 A. I don't think it was hesitancy. It
5 was just we wanted to see whether we are familiar with
6 the exact reporting of the Environmental Assessment
7 Board rulings, how exactly are those reported back, and
8 Ms. Howes gave the answer on that.

9 Q. So to your knowledge there has been
10 no discussion of making the comprehensive auditing
11 approach that you already use more open and
12 accountable, becoming more accountable to your
13 constituency.

14 DR. LONG: A. As I said, we do have the
15 internal function. I believe we are also subject to
16 review by the provincial auditor, and I think in
17 general he has expressed satisfaction with our internal
18 audit process to the point that there has been little
19 need for him to get involved in separate audits.

20 Q. Do you print the provincial auditor's
21 report in your annual report?

22 A. Sorry, could you repeat that
23 question?

24 Q. Do you print the provincial auditor's
25 report on the organization in your annual report?

1 A. No, and I am not sure that there is a
2 provincial auditor's report of Hydro on an ongoing
3 basis.

4 Q. I'm sorry. I just thought I heard
5 you say there was.

6 A. I said that I think in general the
7 provincial auditor has been satisfied with our own
8 audit activities, so that a separate audit by the
9 provincial auditor has generally not been necessary.

10 Q. Is there a set-out way whereby the
11 provincial auditor conveys this feeling of
12 satisfaction?

13 A. I don't know the answer to that
14 question.

15 Q. Is it something that I could get?

16 THE CHAIRMAN: I'm sorry, what was the
17 question? I'm sorry.

18 MR. WRIGHT: Dr. Long mentioned that the
19 provincial auditor said he was satisfied with the
20 overall auditing processes at Ontario Hydro and I
21 wondered if this was delivered in a manner that could
22 be seen.

23 THE CHAIRMAN: Well, the report of the
24 provincial auditor is a document that is tabled in the
25 Legislature. It's a public document and it can be

1 looked at to ascertain what, if anything, the
2 provincial auditor had to say about the operation of
3 Ontario Hydro.

4 MR. WRIGHT: Q. I would like to move to
5 the suggestion system, TIPS, I think it is called. Can
6 you tell me to what level in your chart that it
7 reports?

8 DR. LONG: A. There is a manager of that
9 program and that department is part of the human
10 resources branch. I am not quite sure which division
11 it's in.

12 Q. So it would report, you would think,
13 to the senior vice-president?

14 A. Not directly. I think it reports to
15 one of the directors under the vice-president of human
16 resources. I believe it's compensation and benefits
17 division.

18 Q. So it's rather a low ranking program?

19 A. Not at all. It's supported by
20 everybody in the company. It is just that the
21 administration of the program is at the department
22 level in that branch.

23 Q. Okay. So you are telling me that
24 although it's very important, it doesn't report to the
25 anybody very important.

1 MR. B. CAMPBELL: Mr. Chairman, I think
2 my friend should ask questions and not indulge himself
3 in editorial comments. I think exactly what Dr. Long
4 said was perfectly clear. It's given a high profile,
5 it happens to be administered in a certain location.

6 MR. WRIGHT: I apologize if my
7 questioning was off. I was trying to sort that out,
8 because there is a large body of thought these days
9 that unless there is direct involvement by the very top
10 people in programs, they are not going to be perceived
11 as really serious by the operators, and this is one of
12 the major issues that I referred to in Panel 9, that I
13 wanted to find out under 11 how it actually reported up
14 to see if the efforts in curing the morale issues were
15 ranked high or not.

16 THE CHAIRMAN: He has answered the
17 question. It's a comprehensive program of taking
18 suggestions and it is administered by the branch that
19 he mentioned.

20 MR. WRIGHT: Q. I understand in the late
21 70s that there were a series of working groups that
22 were out meeting with the people who owned land across
23 which transmission corridors were proposed to be being
24 built, and these groups actually facilitated meetings
25 at which issues and concerns were raised.

1 THE CHAIRMAN: Well, there is evidence, a
2 lot of evidence in both Panel 7 and on this panel, that
3 it may have been done in the late 70s but it continues
4 to be done today.

5 MR. WRIGHT: Those kind of working
6 groups?

7 THE CHAIRMAN: I am not quite sure I
8 understand what you mean by those kind of working
9 groups. There certainly is consultation with the
10 various people involved in the property, land and
11 communities of which these projects are directed.

12 MR. WRIGHT: That was under Panel 7?

13 THE CHAIRMAN: And this panel and Panel 6
14 and maybe Panel 8, for all I know.

15 MR. WRIGHT: Q. I understand in the
16 CRESAP report that there was a recommendation that
17 Ontario Hydro do some work on removing layers of
18 hierarchy?

19 [11:40 a.m.]

20 DR. LONG: A. There wasn't a single
21 CRESAP report. The study of the organization was done
22 generally on a branch-by-branch basis and there were
23 separate reports for each branch.

24 There was also an overview report at the
25 beginning of the process and, yes, I think one of the

1 emphasis of that work was getting rid of any
2 unnecessary layers of management.

3 Q. Can you tell me what is happening to
4 that program?

5 MR. B. CAMPBELL: Mr. Chairman, this is a
6 matter that I can tell you has been reviewed regularly
7 in front of the Ontario Energy Board.

8 These reports that have been referred to
9 are comprehensive organizational reports covering the
10 entire organization. There is an extensive tracking
11 system that has been testified to for some years
12 regularly in front of the Ontario Energy Board.

13 There is all kinds of information
14 available to my friend should he choose to look at it
15 to inform himself on this.

16 Against that background and given this
17 hearing, however, I certainly would take objection to
18 having that material brought before you and I take
19 objection to questioning in this area. I think it is
20 completely irrelevant to the issues that you have been
21 asked to deal with.

22 THE CHAIRMAN: We don't think, Mr.
23 Wright, that we need to have that kind of information
24 to deal with the matters that we have to deal with.

25 MR. WRIGHT: The question is a very

1 simple one. I don't want to see any material, I just
2 wanted to know what level in the hierarchy it was being
3 dealt with today.

4 MR. B. CAMPBELL: These various studies?

5 MR. WRIGHT: The particular one about the
6 layers.

7 MR. B. CAMPBELL: That was done
8 Corporation-wide in all branches. The evidence is
9 before the Ontario Energy Board. I think the first
10 person who spoke to it in significant detail was the
11 president and chief executive officer who I think you
12 will find, if you review that testimony, was one of the
13 main initiators of that program.

14 MR. WRIGHT: Thank you.

15 Q. Can you tell me whether the salary
16 wages levels of Ontario Hydro are standard across the
17 province?

18 THE CHAIRMAN: Mr. Wright, if you are
19 going into something else perhaps we should take the
20 morning break.

21 THE REGISTRAR: Please come to order.
22 This hearing will recess for 15 minutes.

23 ---Recess at 11:45 a.m.

24 ---On resuming at 12:00 p.m.

25 THE REGISTRAR: Please come to order.

1 This hearing is again in session. Be
2 seated, please.

3 MR. B. CAMPBELL: Mr. Chairman, if I can
4 get rid of something that I promised to do.

5 Just prior to the most recent amendments,
6 which we expect a Royal Assent very shortly, the board
7 of directors of the corporation consisted of a
8 chairperson, vice-chairperson, a president and not more
9 than 14 other directors.

10 So the total was 17, now goes to 22, but
11 the Deputy Minister of Energy is a non-voting member.

12 THE CHAIRMAN: All right.

13 MR. WRIGHT: Thank you.

14 Q. Is there a standard across the
15 province salary and wage level or do you have different
16 levels for Toronto and the rest of the province?

17 DR. LONG: A. I don't think anybody on
18 this panel is an expert in this area, but it is
19 certainly my understanding that the salary levels for
20 the Society staff and CUPE staff are standard across
21 the province.

22 Q. Has there been any discussion about
23 having an outside audit similar to a financial audit on
24 the general way of approaching engineering issues
25 conducted by either one or a group of large engineering

1 consulting firms?

2 MR. SNELSON: A. I'm not sure there is
3 anybody on this panel who can answer that question.

4 Q. At what level does damage control or
5 who handles damage control complaints, complaints that
6 start getting into the press; for example, the Mohawk
7 transformer problem out near Pickering, things like
8 that?

9 THE CHAIRMAN: I am not sure what
10 relevance this has to what we have to decide.

11 Presumably like most organizations they
12 have a communications type of division which when
13 matters come up in the press they deal with it as they
14 see fit. That would be what most organizations would
15 do and I presume that Ontario Hydro does something
16 along those lines, but what difference does that make
17 to us? I am talking us being the panel up here.

18 MR. WRIGHT: I understand that. I am
19 going to attempt to demonstrate that when I file my
20 evidence.

21 THE CHAIRMAN: It is subject to
22 relevance, of course, because your evidence along with
23 everyone else's has to be relevant to the issues before
24 this panel.

25 MR. B. CAMPBELL: Mr. Chairman, I

1 certainly see no relevance that would entitle my friend
2 to ask questions along the nature of this or any other
3 panel in these proceedings.

4 MR. WRIGHT: Okay. I have reviewed the
5 balance of questions that I have and I think that I am
6 going to work towards your having an early session
7 because at this point I don't see any need in providing
8 the exercise for my friend here in jumping up and down
9 and complaining about what I am asking. So at this
10 point I would thank you and I am finished.

11 THE CHAIRMAN: Thank you, Mr. Wright.

12 I think Mrs. Mackesy is next; is that
13 right? Perhaps you can let her know.

14 I should say that we have to stop today
15 by three o'clock. So I hope that doesn't disappoint
16 anybody too much.

17 So I think what we will do, if that's all
18 right with you, Mrs. Mackesy, we will stop around 12:30
19 for an hour and a quarter, come back at a quarter to
20 two and go until three o'clock. Is that okay?

21 MRS. MACKESY: Okay.

22 Now, I have prepared three packages of
23 interrogatories and given copies of these to the clerk
24 for the Board and I gave copies to Ontario Hydro
25 earlier. There are extra copies of packages 1 and 2 on

1 the second table back from the front of the room.

2 THE CHAIRMAN: Are these all
3 interrogatories?

4 MRS. MACKESY: Yes, they are, Mr.
5 Chairman.

6 CROSS-EXAMINATION BY MRS. MACKESY:

7 Q. Now, would you please turn to
8 interrogatory package 1. This is made up of two items.
9 On page 1 there is Interrogatory 5.29.5 and on page --

10 THE REGISTRAR: One moment, please.

11 MRS. MACKESY: I'm sorry. This is the
12 first package.

13 THE REGISTRAR: 5.29.5 is .61.

14 MRS. MACKESY: Thank you.

15 ---EXHIBIT NO. 683.61: Interrogatory Nos. 5.29.5 and
16 10.29.5.

17 MRS. MACKESY: On pages 2 to 11 of the
18 same package there is a supplementary to 10.29.5. I
19 don't know whether that should be given a separate
20 number or go under the same number.

21 THE CHAIRMAN: I think it can be all
22 included under the same number.

23 MRS. MACKESY: Thank you.

24 Q. Now, 10.29.5 deals with what Ontario
25 Hydro sees as the shortcomings to a dispersed

1 generation plan and 10.29.5 supplementary provides some
2 details of the distributed generation case that Ontario
3 Hydro examined in the course of working towards the
4 update.

5 The third package I gave to the clerk is
6 interrogatory 1.29.1.

7 THE REGISTRAR: That will be .62.

8 MRS. MACKESY: Thank you.

9 ---EXHIBIT NO. 683.62: Interrogatory No. 1.29.1

10 MRS. MACKESY: I maybe be using it in my
11 cross-examination in conjunction with 10.29.5. It was
12 an interrogatory used in my cross-examination of Panel
13 1 a year ago, but wasn't given an exhibit number at
14 that time.

15 Now, before I begin my cross-examination
16 I should explain that from time to time in the
17 interrogatories and in cross-examination of earlier
18 panels I have suggested a local generation supply plan
19 so that people who use the electricity would bear the
20 drawbacks created by the associated generation and
21 transmission. In my statement of concerns for this
22 panel I included the lack of a local generation plan as
23 a concern.

24 Q. Would you please turn now to Exhibit
25 646. This is Ontario Hydro's supplementary witness

1 statement, pages 4 and 5.

2 At the bottom of page 4 Hydro describes
3 one of the planning considerations it looked at in the
4 course of working towards the update and beginning five
5 lines up from the bottom, it reads:

6 Hydro revisited the question of
7 developing a distributed generating
8 system with no additional inter-area
9 transmission facilities. It found that
10 this approach would require the
11 development of about 50 additional
12 generating sites in Ontario during the
13 planning period, including 25 in the
14 Greater Toronto Metropolitan area.

15 This question was also considered in
16 the demand/supply option study and Hydro
17 has again concluded that distributed
18 generation should not be the basis of
19 demand/supply planning because of a
20 significant number of new sites required
21 and the high costs entailed.

22 Now, going to page 2 of my first package,
23 10.29.5 supplementary, the cover response to that
24 request gives more information on the distributed case
25 and I will read the second paragraph into the

1 transcripts.

2 For the purpose of this study the
3 province was divided into 16 areas and it
4 was assumed that each of these areas had
5 to be supplied with its own generation.
6 The attached page entitled: Distributed
7 Plan for 2015 shows the new generation
8 required in each area. The case was
9 analyzed as if all new generation beyond
10 the forecast purchase NUGs was built and
11 operated by Ontario Hydro. However, that
12 the generation could be supplied by NUGS
13 and most of the conclusions for this case
14 would be unchanged.

15 My first question is, if one looks at a
16 local generation supply plan as being one where there
17 would be increased local generation units in the
18 municipal utilities of need and in the rural operating
19 needs of need, would you agree that the revisited
20 distributed system as outlined in 10.29.5 supplementary
21 is still not a local generation supply plan?

22 MR. SNELSON: A. Well, it is clear from
23 what you have read into the transcript, and my
24 understanding too, that the distributed system was one
25 where we looked at 16 years areas and that's a much

1 less fine division of area than would be required to do
2 it on an individual municipality and rural operating
3 area based on an Ontario Hydro operating area basis.

4 Q. So then what you have studied in your
5 distributed generation case would not be called a local
6 generation supply plan in your terminology either?

7 A. Not in your definition of a local
8 supply scenario.

9 Q. Would you call it that?

10 A. I don't have a specific definition
11 for it.

12 Q. Okay, thank you. Would you agree
13 that if Hydro were to use the term local generation to
14 cover the dispersed generation plan as outlined in
15 10.29.5 supplementary that that would be confusing and
16 misleading to someone such as myself who thinks that
17 local generation is supplied in a different way?

18 A. I think it is necessary for each of
19 us to define carefully the terms that we are using so
20 that we don't misunderstand each other.

21 Q. Thank you. Mr. Dalziel, in your
22 direct evidence in Volume 149 at 26300, at page 26300
23 you speak of a case involving no major improvement to
24 the bulk transmission system and no transmission to
25 incorporate the Manitoba Purchase.

1 That would be the same case as 10.29.5
2 supplementary, I believe; is that correct?

3 MR. DALZIEL: A. That's correct.

4 Q. Thank you. My next question is based
5 on the division of the province into 16 parts in the
6 distributed generation study.

7 Would I be correct in thinking that this
8 particular case is only one of a large number of
9 designs that a distributed generation plan could take?

10 A. I'm not sure I understand what you
11 mean, but if you mean could the province have been
12 divided into 15 or 20 or 30 different areas, that's
13 certainly a possibility.

14 [12:15 p.m.]

15 Q. Is it generally more complicated
16 technically to design a distributed system than a
17 centralized system?

18 A. I know it's certainly more difficult
19 to analyze, and I think that was a factor in dividing
20 the province into 16 different regions for the purpose
21 of considering this case.

22 As for the technical operation, I would
23 defer to someone else on the panel, but I would imagine
24 it would have some increased difficulties as well.

25 Q. I was looking more of the analysis

1 that you spoke of in the first situation.

2 A. Okay.

3 Q. Do you mean by that that you chose 16
4 because it was easier to do that than 50, for instance?

5 A. Well, when you are carrying out this
6 kind of analysis, the problem simply does become
7 technically more difficult. As you look at the number
8 of interfaces, the number of interfaces that have to be
9 looked at, and I'm not thinking here of the five
10 critical interfaces that we mentioned earlier, but the
11 interfaces between the various regions.

12 If you were to look at the figure you can
13 see that some of the regions border on four or five
14 neighbouring regions, and if they were to border on to
15 10, then that increases the complexity of trying to
16 understand how such a system might operate.

17 Q. Excuse me, by the figure you mean the
18 map on page 4 of the 10.29.5 supplementary; is that
19 correct?

20 A. Yes.

21 Q. Now, you say looking at that you can
22 see that some border on four or five regions, did you
23 say?

24 A. I am just looking, for example, the
25 one that caught my eye was called G2.

1 Q. Yes.

2 A. I guess it includes Owen Sound,
3 Bruce, Hanover, that area.

4 Q. Yes.

5 A. It borders on the region, G1, C2, C3,
6 W3 and W4.

7 Q. Could we use the term "division" when
8 speaking of those parts, please. If we use "region" I
9 might get confused with the four or five main regions
10 of the system?

11 A. That would be fine.

12 Q. Thank you, very much.

13 Another general question, why did you
14 choose to base all the new generation supply on natural
15 gas facilities only?

16 A. I think that was to accommodate the
17 consideration that these could be Ontario Hydro or
18 non-utility generation facilities, and also that there
19 is a reasonable network of gas distribution across the
20 province, so some fuel supply considerations come into
21 it.

22 The flexibility in being able to site
23 generation, was I think the principal reason for
24 assuming natural gas.

25 Q. Thank you. Next I am going to go

1 through the summary material on distributed generation
2 on page 3 of the package, heading by heading.

3 First, at the top of page 3, under the
4 heading Description, the summary says:

5 Analysis was performed to study the
6 median load forecast circumstances only.
7 For the distributed generation study it
8 was assumed that new generation
9 requirements would be met by small CTU
10 and CC fossil units distributed
11 throughout the province. Regional loads
12 and transmission constraints are
13 addressed and the attached map,
14 distributed generation plan areas,
15 defines the areas for this case.

16 Could you tell me on what basis the 16
17 divisions were established? I realize you have
18 explained that you didn't go into a larger number, but
19 did you base them on operating areas or on boundaries
20 or on some other consideration?

21 A. I believe the division would be a
22 combination of identifying major load centres and also
23 of having the boundaries line up with natural
24 boundaries between different parts of the transmission
25 system, because the analysis is only going to capture

1 flows, principally flows between regions, and one would
2 want that to line up with natural boundaries of the
3 transmission system that might be limiting.

4 A. I think as an example of that, those
5 kinds of considerations, if you looked at the line
6 between the divisions of area G1 and E3.

7 Q. I am sorry, what...

8 A. I am on page 4.

9 Q. Yes. Which were those division
10 numbers against, please?

11 A. G1 and E3. We see there is a line
12 that is clearly coming parallel to two transmission
13 lines, one from Des Joachims, the other one passing
14 through Mountain Chute.

15 Q. I see. I was under the impression
16 that the point of designing a distributed transmission
17 system was to match generation to load; is that
18 correct?

19 MR. SNELSON: A. Generally yes, but more
20 specifically this system was designed to avoid the need
21 for additions to the major transmission additions post
22 1994, and we reckoned that up until that time those
23 transmission additions were reasonably firm and would
24 probably proceed, and that additions beyond that would
25 be deferred.

1 So the purpose, specifically, was to try
2 and design a plan that avoided the need for major new
3 transmission, that does requires a better balance of
4 load and generation within areas that are naturally
5 part of the transmission system and linked together,
6 closely linked together within those areas.

7 Q. So then when you said at the top of
8 page 3, regional loads and transmission constraints are
9 addressed, does that mean that Ontario Hydro
10 anticipates in this particular layout the additions to
11 the existing system by the year 2000 that are listed on
12 page 6 -- I'm sorry, on page 5-3 of Exhibit 6? Do you
13 have that? Exhibit 6?

14 A. The schedule that is given on page
15 5-3 of Exhibit 6 has some facilities that are scheduled
16 to be added after 1994, including Milton to Middleport,
17 Longwood to Lambton, Milton to Trafalgar, St. Lawrence
18 to Hawthorne, and I would doubt that those were added
19 to this.

20 MR. DALZIEL: A. I think the kind of
21 facilities that are assumed to be in-service in this
22 case, if you are to refer to transcript undertaking
23 442.13, that was one provided for Dr. Connell on the
24 various transmission facilities that are either
25 planned, already committed, which approvals have

1 already been received, and facilities for which future
2 environmental assessments are anticipated and when
3 those would be scheduled.

4 So the facilities that are described in
5 that undertaking that are committed, or for which
6 approvals have already been received, it's assumed that
7 those would be in place. But any facilities beyond
8 that for which approvals have not yet been received,
9 it's not assumed that those facilities would be
10 available.

11 MRS. MACKESY: Good. Thank you.

12 I think this might be a good place to
13 break in the cross-examination, Mr. Chairman.

14 THE CHAIRMAN: We are adjourned now until
15 1:45.

16 THE REGISTRAR: Please come to order.
17 This hearing will adjourn until 1:45.

18 ---Luncheon recess at 12:30 p.m.

19 ---On resuming at 1:45 p.m.

20 THE REGISTRAR: This hearing is again in
21 session. Be seated, please.

22 THE CHAIRMAN: Mrs. Mackesy?

23 MRS. MACKESY: Thank you.

24 Q. Mr. Dalziel, before lunch, I believe
25 you referred to an undertaking on transmission for Dr.

1 Connell; is that correct?

2 MR. DALZIEL: A. Yes.

3 Q. And I wrote down 422.13 and I think
4 that was an error that I made. Should it be 442.13?

5 A. Yes.

6 Q. Mr. Snelson, I have one question for
7 you before carrying on with page 3 of Exhibit 683.61,
8 that's 10.29.5 supplementary. This morning you were
9 saying, I believe, correct me if I am wrong, that this
10 distributed generation system design is based more on
11 transmission constraints than on matching generation to
12 load; is that correct?

13 MR. SNELSON: A. No. I think that the
14 matching generation to load takes place within areas
15 that are closely linked from a transmission point of
16 view, so that you have to decide what areas are you
17 going to match generation to load in.

18 Q. Yes.

19 A. And those areas are chosen to match
20 areas that follow natural dividing lines of the
21 transmission system, because the purpose of this case
22 is to find out about how we would manage without
23 additional transmission. So you want the major
24 transmission links that might need reinforcing to be
25 across the boundaries of these areas. You wouldn't

1 want that to be internal to an area.

2 Q. All right. My question then is, in
3 some divisions you will be oversupplied with generation
4 compared to load in this particular layout, and in some
5 others you would be undersupplied with generation
6 compared to load?

7 A. With respect to the existing system
8 that will be correct.

9 Q. Yes. So then you are still, in the
10 existing system, you are using generation located in
11 one division to supply load in another?

12 A. Yes.

13 Q. Thank you. Now, carrying on with
14 page 3, the next heading was Siting, and this section
15 reads, number of stations required to 2015, 23
16 combined cycle and 28 combustion turbine units, and
17 this case assumes that suitable sites with the
18 necessary fuel infrastructure are available.

19 Combined-cycle stations are assumed to be
20 300 megawatt in size, and CTU sites are assumed to
21 average 150 megawatts when provided in this dispersed
22 generation study. About 5,400 megawatts of new
23 capacity would have to be installed on 25 sites made up
24 of 14 peaking stations and 11 base stations in the
25 greater Toronto region by 2015.

1 My question is, do you see the
2 acquisition of 20 sites in the greater Toronto region
3 by 2015 as being a problem with this plan?

4 A. Yes.

5 Q. And could you briefly explain why,
6 please.

7 A. The acquisition of generation sites,
8 they have to have certain characteristics, and that is
9 more or less consistent with other uses of land in the
10 area, and I am sure that Dr. Tennyson could tell us
11 about the actual characteristics that go into site
12 selection. But we would expect that there would be
13 some difficulty in acquiring 25 sites in the greater
14 Metropolitan Toronto area.

15 Q. Dr. Tennyson, could you expand on
16 that with reference to what Mr. Snelson just said?

17 DR. TENNYSON: A. Well, if I can add
18 anything by suggesting that obviously in all the
19 various site-selection exercises, to try and identify
20 25 suitable ones in that kind of a regional area would
21 be quite a challenge.

22 Q. Can you explain why it would be a
23 challenge, please?

24 A. I think in terms of any siting study
25 one has a number criteria. Certainly in any that I

1 have worked on you go through a rigorous exercise of
2 trying to identify what would be suitable sites. and I
3 think that anyone familiar would think that trying to
4 find 25 suitable in a particular geographic area would
5 be somewhat difficult. I mean, they have to be
6 suitable from land use, environmental and social and
7 community perspective, so I think there would be a
8 great deal of difficulty.

9 Q. Are there particular characteristics
10 in that region that would make it difficult?

11 A. Well, off the top of my head, one of
12 the things would be clearly how densely populated an
13 area is. Given that, then there are also large areas
14 that are protected now, or others that we would want to
15 see preserved in their existing state. Certainly in
16 terms of any remaining farm land, I am sure that would
17 be an important consideration.

18 So we are talking about particular uses
19 and trying to find -- one of the things would be how
20 compatible these uses would be with surrounding land
21 uses.

22 As you can appreciate, finding sites in
23 built-up areas I think is quite a difficult exercise.

24 Q. And yet the reason for requiring that
25 number of sites under this particular plan design is

1 because that is where the large use of electricity is
2 compared to the balance of the province?

3 A. Well that's I think the rationale
4 people use, is it not, for arguing that if you want the
5 generation to be near where the load is, that's
6 correct. But it still does present, I think,
7 difficulties, just as finding sites for waste disposal
8 is presenting difficulties as well and yet a lot of the
9 waste is generated. So I think that's the difficulties
10 I am talking about.

11 Q. Thank you. Going on to the next
12 heading, Reliability. The summary reads:

13 With no additions to the transmission
14 system, reliability deteriorates under
15 the dispersed generation assumed for this
16 case. By 2015 the expected amount of
17 unserved energy for the distributed case
18 is about twice the level in the base
19 case. Also area by area the number of
20 system-minutes will vary.

21 First, what is the base case that's
22 referred to? It's mentioned a couple of times under
23 other headings later on the page also.

24 MR. DALZIEL: A. The base case would be
25 similar to the update nuclear, update fossil type of

1 plan. Where we are still relying on a strongly
2 interconnected transmission system.

3 Q. And those are the plans which are
4 more fully described in the attachment, 646?

5 A. As part of the Update, yes.

6 Q. Thank you. Now, would I be right in
7 assuming that in this particular plan design, while
8 there would be no new transmission lines across the
9 boundaries of the regions, there would be lines from
10 the new generation plants built within the divisions?

11 A. Generally that's correct. There
12 would be transmission to incorporate these facilities
13 into the existing transmission facilities within each
14 division.

15 [1:55 p.m.]

16 Q. Within a division, would the new
17 generation necessarily be in the larger load centres or
18 might the new generation be outside the major load
19 centres? That's within the division.

20 A. I think for the purposes of this case
21 they were assumed to be within the boundary of the
22 division.

23 Whether they were actually located in a
24 very high density area or just at the outskirts of a
25 high density area, I don't believe it was examined to

1 that level of detail.

2 Q. Good, thank you. Am I right in
3 thinking in this case that there wouldn't be generation
4 redundancy in each division to provide emergency
5 reliability? You wouldn't build more plants to provide
6 redundancy?

7 A. I think in this case we were still
8 assuming a nominal 24 per cent planning reserve margin,
9 but finding that if you wanted to preserve the same
10 level of reliability the findings were that you would
11 have to increase that reserve margin in order to
12 achieve that.

13 Q. Do you have a figure for what that
14 would have to be increased to?

15 A. I don't believe we have a figure for
16 that. We just have carried the analysis so far as to
17 find that the unserved energy is about twice that, as
18 we might normally experience.

19 I don't have an estimate as to how much
20 generation that would translate into. I think in this
21 case that would verify, as it is said there, from
22 division to division. So for some divisions it may be
23 a few per cent more, in other divisions it may be
24 several per cents.

25 Q. Okay, thank you. Moving down the

1 page to transmission impacts, the summary begins:

2 With the implementation of distributed
3 generation scheme the ability to import
4 and export for emergency assistance and
5 economic advantage will be reduced to a
6 limited ability to move power across
7 areas.

8 My question is, if generation and load
9 really were matched in each of the divisions and there
10 were reserves in each division, would not the existing
11 inter-area transmission still provide a network for
12 emergency assistance?

13 A. It would to an extent. Initially
14 because you are starting off with a reasonably strongly
15 interconnected system it would, but as it gradually
16 evolving and moves towards a more distributed system
17 and more fully takes on the characteristics of a
18 distributed system, with time you would begin to lose
19 the capability to move significant amounts of power
20 reliably from one division to maybe not necessarily the
21 neighbouring one, but perhaps the one beyond it.

22 Q. Well, if you had a match of
23 generation and load plus some reserves and your own --
24 and the local network within the division to handle
25 that, would not the inter-area transmission be then

1 available to carry emergency supplies between
2 divisions?

3 A. It would. It would be a function of
4 the inter-area transmission that is available and a
5 function of the amount of reserves that are provided.

6 So, for example, if you went so far as to
7 ensure that each individual area or division has
8 sufficient generating reserve to provide a certain
9 standard of reliability, let's say the same standard,
10 then the degree to which you would be able to have
11 generation to supply neighbouring or other divisions
12 would be increased.

13 But, again, it's a function of just how
14 much individual reserve is put in place division by
15 division and the degree to which the inter-area
16 transmission has been maintained or already exists.

17 Q. Mr. Snelson, did you want to add
18 something?

19 MR. SNELSON: A. The only point I was
20 going to add is that the situation that you postulated
21 and Mr. Dalziel has described of accurate matching of
22 load and capacity in each division with adequate
23 reserve is quite a different case than the one that is
24 analyzed here.

25 Q. Yes, I think so.

1 A. I would expect to be quite lot more
2 costly than the case that is examined here.

3 Q. And perhaps requiring more sites.

4 A. I would expect it to require more
5 sites. I would also expect it to require more
6 generation in megawatts in addition.

7 Q. Yes, thank you. Going on to the
8 second sentence under transmission impacts:

9 Before 2012 transmission losses are
10 higher than a case with central
11 generation, but as more distributed
12 resources are installed the amount of
13 losses drops below that of the base case.
14 My question on this was, is the reduction
15 in losses taken into account in the costing of the plan
16 in the later years?

17 MR. DALZIEL: A. I don't have the answer
18 to that.

19 Q. Thank you. The next heading is
20 Fossil Generation and the summary reads:

21 Fossil energy production under median
22 load growth ramps up starting in 2008
23 from about 20 terawatthours per year to
24 over 80 terawatthours per year by 2017.
25 Very high levels of natural gas

1 consumption occur. That is, by 2015 over
2 40 terawatthours per year from gas-fired
3 distributed generation and much of the 24
4 terawatthour per year of NUG is gas
5 fired.

6 My question is, did this case rely on
7 natural gas as a primary fuel resource for new
8 generation because Ontario does not see any other way
9 to match generation to load?

10 A. Natural gas was assumed to be the
11 fuel in all of the new generation that's added and
12 earlier I believe I gave one reason for that and that
13 is that the infrastructure of fuel supply can be
14 achieved with the use of natural gas.

15 There are other options which could be
16 used such as small coal-fired generating units or even
17 CANDU 3 units which are comparatively small capacity.

18 But the second factor then would be
19 economies of scale, that in general building plants,
20 coal-fired plant, nuclear plant for those smaller
21 capacities and siting them as individual units as
22 individual stations that the economies of scale would
23 make it less competitive with using natural gas-fueled
24 options.

25 Q. You didn't design in this some of the

1 alternate forms of energy that have been spoken of here
2 in this hearing?

3 A. Alternative energies such as solar,
4 wind and fuel cells.

5 Q. Yes.

6 A. No, those were not considered.

7 Q. Okay, thank you. I understand from
8 what you were saying this morning that you were
9 assuming that there was network of pipelines in place
10 to supply the fuel for the units?

11 A. That's correct, or that there may
12 have been some underlying assumptions that that network
13 could be expanded as well.

14 Q. I see. In expanding the network, did
15 you take into account some people might see this as a
16 negative environmental move?

17 A. I don't think we evaluated the case
18 from that point of view.

19 Q. I am referring to the pipeline
20 network.

21 A. Yes, I understand that. I guess
22 that's captured in the assumed price for the natural
23 gas that is assumed in this case, but I don't think in
24 using that price -- I don't think we went to the level
25 of detail of understanding whether the pipeline

1 facilities that exist today are fully adequate.

2 There may be additional price adjustments
3 to take into account the potential for additional
4 transmission facilities for gas, but I don't think we
5 took it to that extra step as well of considering the
6 reaction to expansion of the natural gas transmission
7 system.

8 Q. I was thinking more of the
9 environmental impact than the financial impacts of it
10 and you weren't --

11 A. In my latter point that's what I am
12 referring to, that's correct.

13 Q. Good, thank you. Under the heading
14 Emissions the summary reads:

15 Under median load growth current
16 emission regulations are respected
17 although both SO(2) and NOx emissions
18 increase in the period 2007 to 2012 as
19 the remaining Hydro coal-fired stations
20 are run heavily to meet increasing energy
21 demands. Tighter emission regulations
22 would probably be met if additional
23 controls were put on Lambton and
24 Nanticoke near their current retirement
25 dates.

1 Is this saying that Ontario Hydro could
2 operate the distributed generating system within the
3 SO(2) and Nox emission limits in spite of the case
4 there is heavily reliance on fossil fuels and natural
5 gas?

6 A. I believe the answer is yes, and at
7 the time of examining this as a planning question the
8 level of acid gas emission controls that we now have as
9 part of the update nuclear, update fossil cases was not
10 applied in this case.

11 So in making reference there to adding
12 the acid gas emission control facilities to the
13 existing fossil stations which are being run heavily,
14 that is something that could be done and in this case
15 it could be done sooner if required.

16 Q. What is the situation with regard to
17 carbon dioxide?

18 A. It's page 11 of the supplementary
19 interrogatory response.

20 Q. Yes.

21 A. There is an illustration of the
22 carbon dioxide emissions. There are several lines on
23 this case and that's because the emissions are being
24 described by fuel source. The legend is in the upper
25 left-hand box.

1 Q. Yes. I notice that -- sorry?

2 A. Sorry. I was just going to say that
3 the total is what I will call an upside down triangle
4 and that's generally speaking the top line in the
5 figure.

6 Q. Excuse me. That reads total after
7 blending. I took that to mean scrubbed and unscrubbed
8 coal. Are you saying this is the total for all?

9 A. That total would refer to the total
10 of all fossil generation used in the case after the
11 blending algorithm of the LMSTM model has adjusted some
12 of the fuels that are being used.

13 Q. Thank you. That certainly was a
14 misunderstanding on my part.

15 There is no separate line here for
16 natural gas. Considering your heavy reliance on
17 natural gas, and that applies to the other emission
18 charts as well I believe, why would there not be a
19 separate line for natural gas?

20 A. The natural gas line is likely the
21 plus symbol--

22 Q. Yes.

23 A. --which in the middle of the legend
24 is referring to other fossil.

25 Q. Would that be mostly natural gas

1 then?

2 A. My understanding is it would be.

3 Just very quickly, the square which is new pulverized
4 coal, we see there is no pulverized coal and indeed the
5 square tracks the horizontal axis all the way across.

6 Similarly with IGCC. The lignite would
7 be the Atikokan/Thunder Bay units, the other fossil, I
8 believe, would correspond to the CTUs and the combined
9 cycle units that are being added and probably Lennox,
10 too.

11 Q. So that would be converted then from
12 oil to natural gas?

13 A. I don't think it is converted in this
14 case. It would be assumed to --

15 Q. I'm sorry. Oil would be included
16 with the other fossils?

17 A. Yes.

18 Q. Yes, thank you. Now, the last item
19 in the summary is headed Costs and it reads:

20 The distributed generation case is
21 estimated to cost about 3 billion more
22 than the base case.

23 One of my questions is, does this cost
24 include the cost of locating the 25 sites associated
25 transmission in the Greater Metro Toronto area?

1 A. I don't believe the costing went down
2 to the level of estimating land acquisition costs for
3 the 25 sites in the Metropolitan area or the 50 sites
4 across the province.

5 I think most of this cost difference
6 would be attributed to the high use of natural gas as a
7 fuel for supplying, as we see towards the end of the
8 planning period, up to 80 terawatthours per hour. I
9 think that drives most of the cost differences.

10 Q. So the costs that have been
11 considered in that amount would be comparable to the
12 costs that appear in the detail for the update?

13 The headings, not the actual figures, but
14 the types of costs would be comparable to those that
15 appear in the update fossil and update nuclear
16 material?

17 A. Generally that's correct, yes.

18 Q. Okay, thank you. Now, going back to
19 page 2, the last sentence in the response read:

20 However, the generation could be
21 supplied by NUGs and most of the
22 conclusions for this case would be
23 unchanged.

24 Could you briefly tell me what
25 conclusions would be changed if the new generation was

1 applied by NUGs rather than Ontario Hydro?

2 A. I think what we are indicating there
3 is that, in general, the characteristics of the CO(2)
4 emissions, for example, the SO(2), the NOx emissions,
5 the total cost would be comparable.

6 They may not be exactly the same, but
7 they would be comparable to the findings, the general
8 findings of this case.

9 Q. Now, going on to page 5, this is
10 headed: Distributed Plan for 2015 Revised Median.
11 What does revised median mean?

12 THE CHAIRMAN: What's the source of this
13 particular -- is this from the interrogatory? Was this
14 given to you with the interrogatory?

15 MRS. MACKESY: This was included in the
16 interrogatory and I don't know what the source of it
17 is.

18 MR. DALZIEL: This is included in the
19 interrogatory and this is the equivalent of, I guess, a
20 working note that described the breakdown of the
21 generation by the 16 areas and whether it was base or
22 peak.

23 With respect to your question, revised
24 median, I don't know what that means. It might have
25 meant using the new median load forecast of the update

1 to the 1990 long-term load forecast.

2 MRS. MACKESY: Q. In the bottom
3 right-hand corner there is a figure 11,100 megawatts.

4 Does this equal the total amount of new
5 generation required throughout Ontario up to and
6 including 2015 both to replace units and to fill new
7 demand within the distributed generation system under
8 whatever this revised median load growth is?

9 MR. DALZIEL: A. That's referring to the
10 total amount of new generation which is added. I
11 haven't checked it. It may not correspond exactly with
12 the details that are found on pages 6 and 7.

13 Q. I added up -- going to page 7, that's
14 where the new units show up. Would that be correct?
15 [2:15 p.m.]

16 A. Pardon me?

17 Q. On page 7 is where the first new
18 units show up?

19 A. Yes, that's correct.

20 Q. I added those figures up to and 2015
21 and I came to about 11,064 megawatts, so it's fairly
22 close to this figure on page 5.

23 A. That's right. The figure on page 5
24 would then be referring to that block of generation on
25 page 7.

1 Q. What page 5 does is break down by
2 division how many new base units and how many new peak
3 units are estimated to be required in each division?

4 A. That's correct.

5 Q. Now, how would the estimate for the
6 number of base generation units be arrived at?

7 A. That's generally a result of
8 developing the case and determining how much base load
9 generation and peaking generation would be required.

10 Q. In each particular division?

11 A. Not necessarily by each particular
12 division, by on the basis of putting the plan together.
13 Again, if you look at page 7.

14 Q. Yes.

15 A. And just as a very rough guide as to
16 how you might approach this, or how the planners might
17 initially approach it. The rows that are described as
18 units retired, which is near the bottom, typically if
19 you are retiring a base load station you might be
20 interested in replacing or adding base load generation,
21 if you were retiring a peaking plant then you may be
22 interested in adding a peaking plant.

23 I think what we will find there is the
24 generation that's being added, the distinctions between
25 base and peak would be described by the left-hand

1 column as 4 by 700 combined cycle.

2 Q. Yes.

3 A. There is a couple of lines.

4 Q. This is about halfway down the page.

5 A. That's correct. And the ones that
6 are described at gas turbine would be the peaking ones.

7 Q. Okay.

8 A. So it's from that total block of
9 generation that's being added, in terms of a sequence,
10 that's determined first, and then somebody would sit
11 down and consider how that generation would need to be
12 distributed amongst the 16 different divisions.

13 Q. Arriving at that distribution are you
14 taking into account something else than the load in the
15 division?

16 The reason I am asking you this is
17 because I think if you look at the entry for G2, which
18 is about two-thirds of the way down page 5, it shows a
19 requirement for two 300 megawatt base units up to and
20 including 2015. Now, G2 refers to the division
21 including Bruce Nuclear Power Developments, and I was
22 wondering why you would need more generation there when
23 it was already oversupplied for the use in the
24 division?

25 A. I don't have an answer with a high

1 degree of certainty for you.

2 It may be a factor of making use of the
3 existing inter-area transmission to the extent that
4 they can within that area. But I am not...

5 Q. You don't want to add anything else?

6 A. No.

7 Q. Okay. Thank you.

8 So again, it would be built in that
9 division but not for use in that division?

10 A. Well, perhaps initially it may not be
11 used in that area, but a little bit beyond 2015 Bruce
12 units at the "A" station would be retiring. So it may
13 be combination of using the -- acknowledging that there
14 is an existing amount of transmission and it would make
15 sense to utilize that to the extent that it can be,
16 combined with the knowledge that in a few years beyond
17 2015 a substantial amount of generation in the Bruce
18 area would be retired.

19 Q. But even with that amount retired
20 there may not be a need just within that division
21 itself for replacing that?

22 A. I don't know the answer to that, but
23 that may be the case.

24 Q. Thank you. Now, going to pages 6 and
25 7 directly, I notice that the load forecast doesn't end

1 in 2014 or 2017, it runs all the way out to 2022. How
2 would those figures have been arrived at between 2018
3 and 2022?

4 A. Those figures for the load forecast?

5 Q. Yes. And for all the other, not only
6 for the peak forecast, but for the load shifting,
7 demand management, NUGs, et cetera?

8 A. It appears to me this is simply a
9 matter where the spreadsheet happens to go out that
10 fair, the template goes out that far and someone feels
11 they need to fill in all the boxes.

12 Q. So that would not be particularly
13 reliable?

14 A. I don't think that's particularly
15 reliable, no.

16 Q. Thank you. Now moving down page 6
17 there are annual figures for demand management and
18 NUGs.

19 Mr. Snelson, this first question is
20 directed to you. I believe in Panel 5 there was
21 cross-examination on how the imbalances of load and
22 generation caused by demand management and NUGs could
23 lead to Ontario Hydro wanting to build more inter-area
24 transmission. Do you recall that?

25 MR. SNELSON: A. Yes, I do.

1 Q. Now, while this plan I understand has
2 been devised not to require more inter-area
3 transmission as far as the addition of new generation
4 is concerned, might planners see a requirement under
5 this sort of plan for new transmission because of
6 imbalances caused by demand management or NUGs?

7 Would the NUGs be distributed by division
8 of need or might they be built anywhere under this sort
9 of plan?

10 A. I think in reality, if you were
11 following this as the strategy, then you would have to
12 constrain non-utility generation to be in areas that
13 would not require major transmission, if that was the
14 strategy you were following.

15 Q. Now, that would still leave demand
16 management as...

17 A. I think that it is much less likely
18 that demand management will cause a need for major
19 transmission than non-utility generation because it
20 does tend to be better distributed according to load
21 than does non-utility generation.

22 Non-utility generation tends to be
23 available where there are a major industries that have
24 large requirements for steam such as the paper industry
25 and the chemical industry and so on, and they are

1 located in certain parts the province which are not
2 necessarily the parts of the province which have the
3 most population and the most load, whereas the demand
4 management which is heavily concentrated on commercial
5 buildings and residential is also a component and so on
6 is better distributed.

7 So I think it's quite unlikely that
8 demand management would in fact require additional
9 inter-area transmission, though as we discussed before,
10 theoretically it could, but it's rather unlikely.

11 Q. That takes me to my next question,
12 and I would like now to turn to my second package of
13 interrogatories, and the one I am going to use is on
14 page 1, and it is No. 4.29.10.

15 THE REGISTRAR: That's .63.

16 ---EXHIBIT NO. 683.63: Interrogatory No. 4.29.10.

17 MRS. MACKESY: It has an exhibit number
18 from a previous panel but it should be given a new
19 number. Thank you.

20 THE REGISTRAR: Pardon?

21 MRS. MACKESY: I was just checking that
22 it already has number from a previous panel.

23 THE CHAIRMAN: If it's an interrogatory
24 that's mentioned in this panel, it gets a number for
25 this panel even if it has been mentioned in another

1 panel.

2 MRS. MACKESY: Thank you.

3 Q. Now, in that interrogatory I asked:

4 Will transmission expansion be used to
5 implement Ontario Hydro's demand
6 management plan?

7 And the response was:

8 Demand management initiatives reduce
9 load and so generally reduce the
10 requirements for transmission facility.
11 A possible exception is noted in section
12 3.4 of Exhibit 25, Demand Management in
13 the 1989 Demand/Supply plan.

14 Now, I was wondering after the discussion
15 on Panel 5 why there had been nothing in this answer to
16 explain that demand management could also require new
17 inter-area transmission.

18 Do I take it from your reply, Mr.
19 Snelson, just before my reading this interrogatory,
20 that in theory it can but you don't think that it
21 actually will?

22 MR. SNELSON: A. I think I have just
23 said that. I haven't had an opportunity to refresh my
24 memory as to what section 3.4 of Exhibit 25 indicates
25 as an exception, so I can't --

1 Q. It referred to load shifting and I
2 wasn't going to go into that again. I was thinking of
3 the concept of demand management generally.

4 A. I think I gave some reasons why it's
5 less likely to require major transmission than, say,
6 non-utility generation.

7 Q. But for a completeness, that sort of
8 information should have been included in this?

9 A. I think that the response is
10 accurate. It says demand management initiatives reduce
11 load and so generally reduce the requirements of
12 transmission utilities. It gives the general direction
13 and that is usually the case.

14 Q. Thank you. Now to return to page 6
15 of 525.5 supplementary. There is a line labelled
16 cumulative supply NUGs, about 14 lines down from the
17 top of the page. The numbers in that line seem to get
18 larger faster than they do in the same line in the load
19 and capacity tables I think for the managed nuclear
20 plan.

21 The total out to 2015 is the same amount
22 but they begin building up faster, if you would just
23 like to compare that. It's at C1-3 of Exhibit 646.

24 Does this require the addition of NUGs
25 earlier in the process?

1 MR. DALZIEL: A. This was one of the six
2 planning questions, the distributed generation case,
3 and at that time we had not really turned our minds to
4 managing surplus, in all of the cases there were
5 planning questions that we were evaluating at the time.

6 So the rate at which the NUGs are being
7 added there was according to the forecast available to
8 the planners at the time.

9 I think if we look at the bottom line on
10 those charts, the actual margin, we can see that the
11 reserve margin is indeed high and that's in part due to
12 the acquiring of NUGs before they are required.

13 Q. Thank you. Going back up towards the
14 top there is a line about eight lines down entitled:
15 Firm Purchases. Could you explain what those involve?

16 A. There is 200 megawatts firm purchase
17 shown for the years 1992/93, and that's, I believe, an
18 existing firm purchase that's with Manitoba. That
19 terminates in the first quarter, I think, of 1993, and
20 then the next block is again 200 megawatts, 1999 to
21 2003 in this chart, and that's the earlier electricity
22 sales agreement negotiated with Manitoba Hydro, and I
23 believe that one was established 1987.

24 Q. That's something quite separate from
25 the Manitoba Purchase.

1 A. Well, it's the front end. I think of
2 it in terms as being the front end of the Manitoba
3 Purchase, there is no additional transmission that is
4 associated or required for that, and it's a contract
5 that was negotiated prior to the 1,000 megawatt
6 agreement.

7 Q. Okay. And I gather that this case
8 does not include life extension of either fossil or
9 nuclear plants, would that be correct or am I wrong on
10 that.

11 A. That's correct.

12 THE CHAIRMAN: I'm sorry, which table are
13 we looking at? Is it A1 that we are looking at?

14 MRS. MACKESY: No.

15 THE CHAIRMAN: We are back on the
16 interrogatory package?

17 MRS. MACKESY: Yes.

18 Q. Now, the next questions are just
19 general questions on distributed generation. Are there
20 difficulties in designing a distributed system when it
21 is based on an existing centralized system where large
22 generating plants are distant from load centres, large
23 enough to be matched with them, or do you see that as a
24 difficulty?

25 MR. SNELSON: A. I think in designing a

1 localized generation system with your definition of
2 localized and on so, that's not itself a more difficult
3 problem than designing a centralized generating system.

4 I think if each area is matched with load
5 and generation and has its own reserves and is planned
6 as a separate system which relies upon the neighbouring
7 systems, to the extent that you could, over
8 interconnections, and so on, with that, then
9 essentially what you have done is changed one big
10 planning problem in a larger number of smaller planning
11 problems, and each planning problem is simpler than the
12 big planning problem. So I don't think you have made
13 things particularly difficult by doing that.

14 The problem, which I think is getting
15 closer to your question is when you are in the
16 intermediate stage where you are moving towards a
17 distributed system with each area dependent on its own
18 resources, but you are still trying to get benefit of
19 being part of the large interconnected system, then you
20 can get part of that benefit but you can't get all of
21 it because the transmission system isn't fully
22 adequate. And that leads to quite a difficult
23 technical problem in terms of estimating the
24 reliability and the energy production of a system that
25 is integrated but not fully integrated. That is quite

1 a challenging technical problem, but that's because you
2 are trying to get the benefits of the integrated system
3 in a situation where strategically you are trying to
4 move to a distributed system.

5 Q. Now, this morning, Mr. Dalziel, you
6 distinguished between the planning design problems and
7 the technical operating problems, and you were
8 referring technical operating problems to Mr. Snelson,
9 were you, at that time? I want to ask about them now.

10 A. Why don't you ask your question and
11 one of us will deal with it as best we can.

12 Q. What are the technical operating
13 problems of such a --

14 A. I think the technical operating
15 problems are the similar to the ones that I have just
16 described. There is no real insuperable technical
17 operating problems, not even the really difficult
18 technical operating problem to operator a number of
19 separate small-distributed, small-localized systems
20 with their own resources, provided they have been
21 planned to have adequate reserves, which would be quite
22 a lot more than we have shown in this case.

23 The problem comes when you are trying to
24 operate a system that is, to some degree, distributed
25 but is also trying to get the benefits of being and

1 integrated system, and so it's operating with many
2 constraints that may affect the operation of the
3 system, and just as that can make the planning problem
4 more difficult, it also makes the operating problem
5 more difficult.

6 [2:35 p.m.]

7 Operating a system which would have many
8 simultaneous constraints that might alter the
9 scheduling of generation or the way in which
10 transmission lines are taken out of service for repairs
11 and so on, all the operating decisions that have to be
12 made.

13 Q. Thank you. Now, the next section of
14 my cross-examination is a catch-all of miscellaneous
15 items and first would you, please, turn to page 10 of
16 my second package. This is interrogatory 10.29.17.

17 THE REGISTRAR: .64.

18 THE CHAIRMAN: Thank you.

19 MRS. MACKESY: Thank you.

20 ---EXHIBIT NO. 683.64: Interrogatory No. 10.29.17.

21 MRS. MACKESY: Q. In this interrogatory
22 I ask:

23 Does Ontario Hydro prefer not to
24 develop fossil and nuclear generation on
25 the same site and, if not, why not?

1 And the response was:

2 When seeking project specific approval
3 for a new supply facility the siting
4 studies would be done at that time and
5 would consider the possibility of nuclear
6 and fossil facilities on the same site.
7 Hydro is not seeking approval for either
8 nuclear or fossil facilities at this
9 time.

10 Now, I realize that Ontario Hydro is not
11 asking for approval for nuclear and fossil facilities
12 at this time, but my understanding is that someone else
13 might persuade the Board to grant that anyway.

14 So I was wondering whether anyone on the
15 panel would be able to answer the question as to
16 whether Hydro prefers not to develop fossil and nuclear
17 generation on the same site?

18 MR. SNELSON: A. I don't think that we
19 have fully come to a position on this.

20 Q. Okay.

21 A. We clearly have combustion turbine
22 units on nuclear generating station sites now to use as
23 emergency supplies to the nuclear generating station
24 and some of those facilities can be used to supply
25 power to the system under certain circumstances.

1 I understand that the sites that we
2 acquired in the Port Hope area, which is Wesleyville,
3 has at times been considered as having fossil
4 facilities on one half of the site and nuclear
5 facilities on another part of the site, but in terms of
6 major facilities I don't believe that we built nuclear
7 and fossil major facilities on the same site and this
8 is a question that we really haven't, as I say, come to
9 a firm position on.

10 Q. Okay. What are the considerations
11 that would go into making a decision of that sort?

12 A. All the considerations that go into
13 siting generally, and there could be particular
14 additional technical considerations and the general
15 siting including environmental and social
16 considerations and so on.

17 One particular technical consideration
18 that has to be taken into account is the requirement
19 for an exclusion radius around a nuclear generating
20 station and what sorts of facilities can be within that
21 exclusion radius or what precautions would be necessary
22 if there were facilities within that exclusion radius.

23 That is a particular issue which you
24 would have to address in that particular circumstance.

25 Q. Is there something in the nature of

1 the fossil fuel, be it natural gas or coal or whatever,
2 that would be incompatible with a nuclear...

3 A. Well, not to my knowledge. We do
4 have oil, for instance, for combustion turbine units on
5 nuclear sites at this time.

6 Q. Next I would like to ask about one of
7 the technical and economic criteria applicable to
8 siting considerations. This is mentioned in Exhibit 3
9 at page 14-35.

10 Towards the bottom of the page in the
11 right-hand column there is the heading Limited
12 Generation at One Site and under that there are a
13 couple of sentences reading:

14 No site should exceed 35 per cent of
15 the total system generation requirements
16 in its annual energy production. Larger
17 concentration of generation at one site
18 would endanger bulk power system
19 reliability and security.

20 My question is, why was 35 per cent
21 chosen as the upper limit and not some lower percentage
22 such as 20 or 25 per cent?

23 A. I really don't know.

24 Q. Okay. Could you find out why?

25 A. I think we could undertake to try and

1 find out why. I'm not sure whether there will be
2 anything written down as to why. So it could well be
3 that we may come up empty handed on that.

4 Q. Yes.

5 MRS. MACKESY: Could I have an
6 undertaking number for that please.

7 THE REGISTRAR: Undertaking .36.

8 MRS. MACKESY: Thank you very much.

9 ---UNDERTAKING NO. 684.36: Ontario Hydro undertakes to
10 determine why 35 per cent was chosen as
11 the upper limit of the total system
generation requirements in its annual
energy production.

12 THE CHAIRMAN: I guess it is primarily a
13 siting criteria; isn't it?

14 MR. SNELSON: Yes, it is a siting
15 criteria. The concept is clear that if you put too
16 many eggs into one basket, then if something happens,
17 for instance, a tornado goes through all the
18 transmission lines that come out of that one site, then
19 you have placed the system at considerable risk, but
20 why it is 35 per cent rather than 30 per cent or 40 per
21 cent is the question that I can't answer.

22 MRS. MACKESY: Excuse me. I took the
23 figure down to as low as 20 or 25 per cent.

24 MR. SNELSON: Yes.

25 MRS. MACKESY: Q. When calculating this

1 percentage what figures do you use?

2 Do you compare the net annual generation
3 of the site to the total primary demand for the
4 province or do you use some other groups of figures?

5 MR. SNELSON: A. The words here talk
6 about in its annual energy production.

7 So I think the way you would calculate it
8 is that you would take the energy production from all
9 of the generation on one site and divide it by the
10 total energy production of the system and if it was
11 more than 35 per cent, then according to this criteria
12 it wouldn't be satisfactory.

13 Q. In a situation of multiple stations
14 at one location, does each station count as a separate
15 site in the calculations or would all the stations at
16 one location be grouped together as one site?

17 A. I believe that all the generation in
18 one location would be grouped together.

19 So if you had a four-unit generating
20 station, then the four units would lumped together. If
21 you had more than one four-unit generating station on
22 essentially the same site, then you would add it
23 together.

24 Q. Thank you. Ms. Howes, my next
25 question is for you and this has do with the emission

1 charts in Exhibit 682 and they are at page 88 to 92.

2 MS. HOWES: A. What were the pages
3 again?

4 Q. 88. Beginning on 88 and running
5 through to 92.

6 A. Thank you.

7 Q. My first question is, am I right in
8 thinking that these charts include life extension of
9 Lambton and Nanticoke?

10 A. Yes, they do.

11 Q. And they do not include life
12 extensions of any nuclear units?

13 A. No, they don't.

14 Q. That's all I wanted to know about
15 that. My next question is on fuel switching. I
16 believe in Panel 4 that we were told that fuel
17 switching might not be limited to natural gas; is that
18 still correct? Could anyone speak to that?

19 MR. SHALABY: A. Fuel switching in
20 energy management?

21 Q. Yes.

22 A. The evidence we presented focused
23 primarily on natural gas, but we acknowledge that there
24 is potential of conversion to other fuels other than
25 natural gas such as wood and oil.

1 Q. Now, Ms. Howes, I believe you have
2 mentioned tree planting as one possible measure to
3 counteract carbon dioxide production from generating
4 facilities?

5 MS. HOWES: A. Yes.

6 Q. Would the panel agree that as a
7 personal measure that people could take would be to
8 grow trees which use up carbon dioxide while growing
9 and harvest them for their own heating needs rather
10 than rely on either fossil electricity generation or
11 natural gas, both of which are net producers of carbon
12 dioxide?

13 A. Generally I think that's true. I
14 think when I discussed biomass plantations I think I
15 said there would be a net, sort of, zero CO(2) because
16 of the balance of the consumption and production of
17 CO(2).

18 Q. Thank you. My next question is on
19 Exhibit 322.21. This is the NUG update of May 1992. I
20 don't have my copy with me so I am going to read from
21 my notes and I hope that they are correct.

22 If you turn to page 3, please.

23 MRS. FORMUSA: (handed)

24 MRS. MACKESY: Thank you very much.

25 Q. Now, on page 3, the first sentence

1 reads:

2 Since the release of the DSP update a
3 number of further actions have been taken
4 by Ontario Hydro.

5 I am going down to the third one which reads:

6 With respect to future proposals
7 Ontario Hydro has decided to accept no
8 new proposals for projects over five
9 megawatts other than hydraulic and some
10 special projects until need for
11 generation is demonstrated.

12 I was wondering whether anyone could
13 describe what is in mind with the phrase special
14 projects?

15 MR. SNELSON: A. I believe that has
16 actually come up once before and I indicated that I
17 don't know.

18 Q. Sorry.

19 A. It was a small comment in somebody
20 else's cross-examination.

21 Q. Thank you very much. Now, in Panel 9
22 references were made to a new Ontario Hydro plan for
23 the permanent disposal of non-fuel nuclear waste also
24 called low level and intermediate waste.

25 On April 30 in the transcripts, Volume

1 140, at pages 24744 and -45 there was reference made to
2 the old plan being quite out of a data and a new plan
3 being "just around the corner."

4 I am wondering, has a new plan now been
5 published or would anyone know that?

6 DR. LONG: A. A new plan has been
7 prepared and was presented to the technical advisory
8 committee of our board which subsequently passed it on
9 through the board. However, the board has deferred
10 approval of that plan. So it is not in a published
11 form.

12 Q. So it is not available to the public
13 yet?

14 A. That's correct.

15 Q. Okay, thank you. Will be it made
16 available to the public if it is...

17 MS. HOWES: A. Yes, it will be.

18 Q. Now, would you please turn to page 12
19 of my second package, please. This is interrogatory
20 No. 10.29.19.

21 THE REGISTRAR: This is 683.65.

22 MRS. MACKESY: Thank you.

23 ---EXHIBIT NO. 683.65: Interrogatory No. 10.29.19.

24 MRS. MACKESY: Q. In this interrogatory
25 my question was:

1 Does the surplus forecast for the late
2 1990s and early 2000s increase the
3 likelihood of export contracts creating
4 an Ontario Hydro desire for more
5 generation after the surplus ends than
6 there is a need for within ontario?

7 And the answer was:

8 It is not Ontario Hydro's policy to build
9 generation for export purpose as
10 discussed on page 16-5 of Exhibit 3,
11 the Demand/Supply Plan Report.

12 Ontario Hydro only exports power which is
13 surplus to domestic demand. At any time,
14 daily or seasonally, the system's
15 generation capacity may exceed the demand
16 required to meet domestic demand. If
17 surplus generation is available and if a
18 purchaser can be found it may be possible
19 to sell on a short-term interruptible
20 basis.

21 My question is, might plants built in
22 advance of Ontario electricity requirements as a result
23 of resource smoothing or for some other reason lead to
24 firm long-term contracts for energy that could not be
25 then used to supply Ontario's later growing demand?

1 MR. SNELSON: A. It is not Ontario
2 Hydro's policy to build generating plants and to sell
3 that power on a firm basis unless it is surplus to
4 Ontario's requirements.

5 So exports are not a driver of our
6 construction program and we wouldn't in those
7 circumstances plan on signing a major firm power sale
8 that would then cause us to have to build -- cause that
9 generation not to be available in Ontario when it is
10 needed.

11 Q. Okay. Now, my next question deals
12 with the possible repercussion of the cancellation of
13 the Manitoba Purchase transmission.

14 In Exhibit 646, page 3.9, the last
15 sentence of that section reads, under the heading
16 Process for Planning, the last sentence in point 9
17 reads:

18 Changes and circumstances including
19 changes to the forecast and expectations
20 underlying the planning process make
21 planning a dynamic and iterative process
22 for integrating options into
23 demand/supply plans.

24 I am wondering, when you use the term
25 iterative planning does that mean when one feature of a

1 plan is set aside you would go back and look at
2 previously rejected features that might fill all or
3 part of the purpose of the feature which was rejected?

4 A. Yes, I believe so. I believe that
5 whenever any circumstance changes in the planning
6 circumstances you question whether the previous plans
7 are appropriate, you go back and say what sort of
8 changes should I make and there could be a variety of
9 options that would be considered at that time.

10 Q. And you look at changes that might
11 have been thought of five or six years ago and see
12 whether they might be used?

13 A. If there was good reason to do so, if
14 there was good reason to suspect that that might be an
15 appropriate way to go.

16 Q. The reason I am asking is that in the
17 1980s one of the benefits seen for a transmission line
18 running east out of the Bruce Nuclear Power Development
19 to the Lake Simcoe area was that of supplying
20 electricity to Northern Ontario. Does anyone on the
21 panel recall that?

22 [2:55 p.m.]

23 A. I'm sorry, one of the benefits of --
24 we are we talking about the Bruce to Essa transmission
25 proposal?

1 Q. Yes. Or any line from Bruce to the
2 east.

3 A. Yes.

4 Q. One of the benefits of that was seen
5 as supplying electricity to Northern Ontario.

6 A. The transmission line, as I
7 understand it, and here I think we are getting into
8 some territory which was really Mr. Macedo's territory,
9 but as I understand it, transmission between Bruce and
10 some point to the east such as somewhere in the Barrie
11 area, does help to strengthen the transmission between
12 the Toronto area and Sudbury. It helps to reduce the
13 weakness of the part of the system that is south of
14 Barrie. And that transmission system can be used both
15 for transfer of power to Northern Ontario and transfer
16 of power from Northern Ontario, and I believe Mr.
17 Macedo's evidence was that it is in fact used in both
18 directions, and depending on the circumstances either
19 one could be limited.

20 Q. My next question is then might
21 cancellation of the Manitoba Purchase transmission
22 revive Ontario Hydro's interest in such a proposal?

23 A. Clearly, everything is related to
24 some degree, but I think that the relationship here, if
25 there is one, would be very weak.

1 MRS. MACKESY: This might be a good point
2 to close, Mr. Chairman.

3 THE CHAIRMAN: We will stop until Monday
4 morning at ten o'clock.

5 THE REGISTRAR: Please come to order.
6 This hearing will adjourn until Monday morning next at
7 ten o'clock.

8 ---Whereupon the hearing was adjourned at 2:58 p.m., to
9 be reconvened on Monday, June 22, 1992, at
10 10:00 a.m.

E R R A T A
and
C H A N G E S

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<u>Page No.</u>	<u>Line No.</u>	<u>Discrepancy</u>
(v), 28969	Exhibit 683.56:	114.67 s/r 1.14.67.

